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Refined Prices Rise, Naturals Become Scarcer

N. P. N. News Bureau

TULSA, Aug. 21. — Although faced with a possible shortage of crude oil as result of enforced shutdown of producing wells in six southwestern states, a majority of Mid-Continent refiners are expecting to weather the shutdown period without an appreciable shortage of refined oil products.

A check-up by NATIONAL PETROLEUM NEWS late last week indicated a number of Mid-Continent refiners face a definite crude shortage and in a few instances possible shutdown of their refineries. But stocks of refined products at these plants were expected to tide them over, after their crude supply runs out.

Eleven Oklahoma and Texas refiners (exclusive of those on the Texas Gulf coast) said they had sufficient crude to run at a "normal" rate for 15 days or more.

There were some 16 or more plants in this Oklahoma-Texas group who reported supplies of crude to last them less than 10 days. East Texas refiners seemed hardest hit, reporting the fewest days' supply of crude. Texas Gulf coast refiners, for the most part, have sufficient crude to "outlast the production holiday," it was said. This crude may, however, be frozen if Gulf coast refiners are unable to obtain sufficient natural gasoline to blend with their unfinished motor fuels.

In Louisiana and Arkansas, refiners have from 7 to 10 days' supply of crude available to their plants, while Kansas refiners' supply ranges from 3 to 25 days. Supplies of most Kansas refiners average around 10 days, it was found.

Limited quantities of Oklahoma and Kansas storage crude were reported available to some Mid-Continent refiners at eight to ten cents a barrel above Indiana Standard's posted schedule for similar oil (the Indiana company did not reduce Oklahoma or Kansas crude prices). Distribution of this oil, which may be needed by refiners after their crude supply is depleted, however, is a big problem, it

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Only One Refinery Reported Closed

TULSA, Aug. 22. — Operations at only one Mid-Continent refinery ceased during the first week of the oil well shutdown as a result of insufficient crude supply, reports here indicate. Panhandle Refining Co.'s Kings Mill, North Texas refinery was reported shut down this week. Plant has skimming capacity of 2500 barrels of crude daily, no cracking unit.

A Kansas refiner reported he was taking advantage of the production holiday to close down his 5000-barrel refinery for clean out and inspection.

Wilcox Refining Co. has asked the Oklahoma Corporation Commission to help it find an additional crude supply in order to prevent shutdown of its 6000-barrel Bristow, Oklahoma refinery.

Crude Output Drops, Refined Prices Rise As Fields Shut Down

N. P. N. News Bureau

CLEVELAND, Aug. 22.—Oil field shutdowns in the Southwest were a week old today and concrete results were a reduction of more than a million barrels in daily average crude oil production and a strengthening, if not actual advances, in all important oil markets.

The 15-day shutdowns, effective in Texas, Oklahoma, Kansas, Louisiana, New Mexico and Arkansas, halted the crude price cuts started Aug. 10 with a 20-cent reduction by Sinclair Prairie Marketing Co. in Texas, New Mexico, Kansas, and Oklahoma. Sinclair effective Aug. 10, announced it was withdrawing its crude price postings in these states but gave no indication that it planned to restore the price cut at the end of the shutdowns.

Several smaller refiners in Oklahoma and Texas announced that they were restoring their crude prices to former levels.

Michigan has put into effect a production curtailment order, but Illinois officials can do nothing without a state proration law and don't appear disposed to call a special legislative session to enact such a statute.

Many Independent refiners face a shortage of crude supplies before the end of the 15-day period, but expect that their products in storage would tide them over after their crude runs out.

Brokers in Chicago reported difficulty in obtaining supplies from Mid-Continent refiners and many were turning to Michigan and Illinois plants, at least for low-octane gasolines.

There has been an almost universal submission to the shutdown orders. Outstanding exception was Lion Oil Refining Co.'s legal attack on the Arkansas shutdown order as regards its 52 wells in Jones sand of Schuler field.

But in a decision late Tuesday, the Arkansas court upheld validity of that state's shutdown order attacked in Lion's suit.

Shutdown of producing wells in the Southwest has cut down natural gasoline production by about two-thirds, sending natural prices up about three-quarters of a cent per gallon in three days.

The California oil industry looks for the Mid-Continent shutdowns to strengthen markets in

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U. S. Crude Output Cut 1,069,550

NEW YORK, Aug. 22.—Shutdown of six oil producing states resulted in a slash of 1,069,550 barrels in daily average production of crude oil in the country, according to the report compiled today by the American Petroleum Institute.

Texas alone dropped 985,600 barrels on daily average, while Illinois, where no shutdown order was in effect, dropped 2600 barrels daily. Louisiana dropped 55,650 barrels and Louisiana production was off 38,400. Total reduction for the country, east of California, was 1,080,250 barrels. California production increased 10,700 barrels on daily average. Kansas production also advanced 1150 barrels, while Wyoming, and production from eastern fields increased 9000 and 3350 barrels, respectively.

* * *

Arkansas Shutdown Order Held Valid

EL DORADO, Ark.—Validity of the Arkansas Oil Conservation Commission's shutdown order was upheld in a decision of Chancellor Speer here today when he dismissed for want of equity petition of Lion Oil Refining Co. for an injunction against the order applying to its Jones Sand wells in the Shuler field.

The Lion Company had contended order was unconstitutional in that it was, in effect, an effort to influence crude oil prices.

* * *

Col. Thompson Favors Pipeline Divorce

AUSTIN, Tex.—Col. Thompson of Texas Railroad Commission yesterday expressed hope next legislature would order divorcement of pipelines from common ownership with producing companies. His statement was made in course of hearing on application of Humble Oil and Refining Co. for more of the allowable oil from the East Texas field.

* * *

Michigan Curtails Crude Output

LANSING, Mich.—A new oil proration order to become effective at 7 A.M. Aug. 23, reduces production in six prorated

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which both east and west coast marketers compete. But the states' action in shutting down oil fields completely, plus reports of advancing wholesale gasoline prices, has given opponents of the California oil proration law some of ammunition. Petitions seeking a referendum on the oil law will obtain the required number of signatures to get it on the ballot, it was predicted.

Mid-Continent oil producers, as represented by the Independent Petroleum Ass'n of America, are backing the shutdowns as a "temporary" measure but have warned the state oil regulatory bodies that when the shutdowns are lifted they should keep allowables down to realistic levels and enforce quotas.

Texas Railroad Commission has called a meeting for Aug. 26 at Austin to which major company executives have been invited for the purpose of presenting data on their stocks positions and answering questions about their policies, such as was done at similar meetings in March and last December.

Interior Secretary Ickes pointed out that if the shutdowns resulted in a "shortage" he could suspend the Connally "hot" oil law. This brought a sarcastic blast from Texas Commissioners Thompson and Sadler who said that the law wasn't being used.

There was quite a bit of pro and con talk about federal control in the Mid-Continent oil circles late last week after the six-state production holiday.

There were any number of oil men who said, in effect, that the state regulatory bodies had served the oil industry up to the federal government by the apparently concerted action in launching the wide-spread shutdowns. "It is concrete evidence," some of them said, "that state authorities have been unable to cope with the problem."

Still other oil men were just as positive that the state authorities had served notice on the federal government and any congress that might be considering oil control legislation that they were thoroughly capable of handling the matters within their respective states.

The opinion was also expressed in some quarters that some of the major companies appeared to be more receptive to the idea of federal control than had been the case in times past. These companies, it was believed, were getting woefully tired of being dragged from state capitol to state capitol month after month in connection with the conduct of their businesses, and of being the "whipping boy" for state politicians.

Burford Freed By Texas Court

DALLAS, Tex., Aug. 19.—Freeman W. Burford, president of the East Texas Refining Co., won his fight Aug. 18 to prevent removal to Louisiana to face a federal indictment charging conspiracy to violate the Connally "hot" oil law.

Federal Judge T. W. Davidson of the northern Texas district, not only refused to grant a removal order, but in a lengthy and outspoken decision, flayed the two former Louisiana officials indicted with Burford, former Governor Richard Leche and Seymour Weiss.

"The court feels," the decision stated in part, "that Freeman Burford acted under advice of counsel, including the attorney general of Louisiana. He acted as a reasonably prudent man would have acted under the same circumstances and there is a want of any probability that he would be punished in a court of justice.

"If he were on trial before this court with the record here, he would be entitled to a preemptory instruction. He has taken on in this trial a greater burden than he would have to bear in the federal court in Louisiana. In that court, the jury would be told they must believe him guilty beyond a reasonable doubt. In this court he has assumed the burden of proving himself not guilty."

Burford Explains Payments

On the stand Aug. 14, Mr. Burford explained the payments he made to Weiss which formed a part of the basis of the conspiracy indictment charges against him, his East Texas Refining Co., former Governor Leche and Weiss.

Mr. Burford said arrangements were made with A. C. Glassell of the Pelican Oil Co. for purchase by his company of a million barrels of Rodessa crude at 90 cents a barrel daily through East Texas Refining Co.'s new pipline to East Texas. He said he was instructed to pay Weiss 10 cents a barrel for the oil and 80 cents to Mr. Glassell. A $48,000 payment was made to Mr. Glassell under these instructions, Burford said.

Later when the pipeline was sold, Mr. Burford testified he paid Weiss a total of $100,000 for his part in selling the line. "He earned every penny of it," Burford testified.

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fields as follows: Walker field in Kent county, New Salem field in Allegan county and Columbia field in Van Buren county 50 per cent from 200 to 100 barrels per day and in the Freeman pool, Clare county from 250 barrels to 200 barrels and the Redding field from 125 to 100 barrels, P. J. Hoffmaster, conservation director today announced.

The proration schedule covering a period of 21 days was set up by the state advisory board last Friday to prevent physical waste. It also takes into consideration new wells in the southwestern part of the state which are partially accountable for overproduction.

A further hearing by the Advisory Board will be held here Sept. 6, to determine the advisability of continuing or revising the proration order.

* * *

Illinois Official Replies to Oil Critics

SPRINGFIELD, Ill.—Lieut. Gov. John Stelle in a prepared statement today said he would strongly oppose any steps which would result in restricting the development of the oil industry in Illinois.

"I have repeatedly endorsed true conservation of our natural resources but am unalterably opposed to the passage of any legislation which has as its purpose and will in effect retard or hamper the development and operation of the oil industry in Illinois," Stelle said.

The statement was regarded as the state's answer to repeated suggestion of other states that Illinois pass laws to control oil production which was largely responsible for price difficulties in the industry.

Stelle denounced the "apparent attempt to coerce Illinois into acceding to the demand of large and foreign interests to pass legislation designed to protect those interests at the expense of our people."

He further declared that Illinois producers located as they are in the center of a large marketing area are entitled to premium price for their crude because of savings in transportation costs "amounting to as much as 40 cents a barrel."

"The interests which are now apparently criticizing Illinois actually own or control approximately 90 per cent of all production in Illinois as well as Texas, Oklahoma, and other states," Stelle said. "They have absolute control, through production and transportation, of the problem which they now seek to blame on Illinois."

* * *

Socony Vacuum Advances New England Prices

NEW YORK—Socony Vacuum Oil Co. today announced that effective Aug. 24 it will advance its tank car and tank wagon postings for kerosine 0.25 cent throughout New York and New England, with the exception of Boston, where the increase will be 0.125 cent. On the same date, the company will also advance its tank car prices for Nos. 2, 3 and 4 Fuel Oils 0.125 cent in the same territory, with the exception of Boston, the announcement said.

* * *

7% Gain in U. S. 'Gas' Demand in September

WASHINGTON—September demand for motor fuel was estimated at 49,100,000 barrels, or about seven per cent above September consumption last year, by the Bureau of Mines in its forecast released today.

To meet motor fuel demand, the Bureau estimated a daily average supply of domestic crude for the month of 3,510,700 barrels, or 11,200 barrels less than estimated August demand, would be necessary.

Since compilation of its report was started, the current shutdown in production was made effective, the Bureau states, adding that "this shutdown will doubtless reduce the refinery demand for crude oil in August; conversely, a lifting of the shutdown should raise consumer deliveries above normal in September. However the Bureau's estimates for the two months combined should be adequate."

Arnold Hints Legal Action On Oil Price Basing Plans

N. P. N. News Bureau

WASHINGTON, Aug. 19.—The Department of Justice is planning to file legal proceedings "which will raise the issue of the basing point system in the distribution of gasoline," as soon as the Madison oil case has been finally passed upon by the U. S. Supreme Court.

This was disclosed in a letter by Thurman Arnold, in charge of the justice department's anti-trust division, to Wyoming Attorney General Kerr who had complained to Mr. Arnold about gasoline prices in that state. Basis of the complaint was that Wyoming gasoline prices allegedly are based on freight rate from Group 3 (Oklahoma), even though the motor fuel may be refined within the state from Wyoming crude, it was indicated.

The federal anti-trust chief told Mr. Kerr that conditions in Wyoming about which he had complained was a "nationwide" matter which the justice department has been investigating for some time.

Mr. Arnold also hinted that the matter of "basing points" in gasoline distribution would be covered in the oil hearings this fall before the Temporary National Economic (Monopoly) Committee, of which Senator O'Mahoney, of Wyoming, is chairman. Incidentally, Mr. Arnold also hails from Wyoming.

Regarding a statement by the Wyoming attorney general that "major oil companies have not only set the price, but have contacted independent dealers with a view to getting them to raise their prices on all occasions when the major companies advance their retail prices," Mr. Arnold said that he had instructed the Federal Bureau of Investigation office at Denver to check up on this charge.

* * *

Wyoming Complaint Names 3 Companies

CHEYENNE, Wyom., Aug. 22.—Complaint charging Sinclair Refining Co., Continental Oil Co. and The Texas Co. with discrimination in the sale of gasoline in Wyoming has been filed by Governor Nels H. Smith, with Ewing T. Kerr, attorney general of the state.

The complaint, Attorney General Kerr revealed, charges that the three companies were parties to "a combination to prevent competition and to control and influence prices," and with having intentionally discriminated among sections of the state by selling gasoline at a lower price in one section than in others "for the purposes of destroying competition and gaining unjust and unreasonable profits."

The complaint also points out that Wyoming refined gasoline was sold at 13.5 cents at tank wagon in Colorado, "compared with the prices in Wyoming at the refineries of 17.5 and 18 cents a gallon," Kerr said.

Governor Smith's complaint was brought under Wyoming statute which prohibits price discrimination among different localities. Law also provides that after a hearing on the complaint before the attorney general, he may institute proceedings to forfeit state charters of the corporations.

Kansas Hearing Set

TOPEKA, Kan., Aug. 21.—The Kansas Corporation commission has issued an order calling for a statewide market demand hearing at Wichita, Kan., Aug. 28.

Shutdowns Halt Cuts In Crude Prices

N. P. N. News Bureau

TULSA, Aug. 21.—Several of the major purchasers of crude in the six southwestern states where oil fields are shut down have not to date met the crude cut initiated by Sinclair Prairie Oil Marketing Co., and followed by Humble Oil & Refining Co. and a few others in Texas, New Mexico, and Louisiana.

The Texas Co., probably is the most important of the major buyers that have not made any change in crude postings. Texaco is an important producer, purchaser, transporter and refiner of crude in virtually all of the important producing centers, including Illinois.

Sinclair, effective Aug. 18, announced it was discontinuing its crude price postings in Texas, Oklahoma, New Mexico and Kansas.

Here is a list of the larger purchasers of crude who have made no price changes:

The Texas Co., Gulf Oil Corp., Magnolia Petroleum Co., Carter Oil Co. (New Jersey Standard), Standard Oil Co. of Indiana (in Oklahoma and Kansas).

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Houston Third Grade Gasoline Price Advanced

TULSA—Prices for third grade gasoline at most Houston service stations that obtain their supply from East Texas refineries were reported up 2 to 3 cents a gallon over last week's levels. Advances in dock prices for East Texas gasoline were said to be a factor in the retail price advance.

Compact Commission Meets in Historic Session

Crude Price Cut Precipates Call, Shutdowns Follow Compact Meeting

N. P. N. News Bureau

TULSA, Aug. 19.—State officials charged with enforcing prorating in six oil producing states, harassed by a sudden break in crude prices, ducked under the hastily spread and protective wing of the Interstate Oil Compact Commission at Oklahoma City Aug. 15 to figure what to do in the crisis.

Two hours later they emerged from the first emergency meeting in the compact commission's history—an executive session from which everyone was barred except state and compact officials and their attaches and the "official observers"—armed with a plan destined to write a new page in the history of American industry.

That plan is now known around the world. Briefly, it called for the oil regulatory bodies to shut down crude production in their respective states. Within 56 hours the plan had been followed in the six southwestern producing states of Texas, Oklahoma, Kansas, New Mexico, Arkansas and Louisiana.

More than two-thirds of the nation's current crude oil production had been stopped.

The emergency meeting of the compact commission was called by Chairman Ernest O. Thompson, who also is a member of the Texas Railroad Commission in charge of oil proration in that state.

Grouped around the council table in the appropriately chosen "blue room" at the Oklahoma state capitol, when Chairman Thompson told all persons not holding compact commission credentials to withdraw, were the following:

Oklahoma—Gov. Leon C. Phillips, W. J. Holloway, Oklahoma member of the commission; Mac Q. Williamson, attorney general.

Texas—Chairman Thompson, Jack Blalock and Elwood Fouts, legal advisors to the Texas commission member.

Kansas—Andrew F. Schoeppel, chairman of the Kansas corporation commission; T. A. Morgan, conservation director for the commission, and Ralph Pryor, chairman of Gov. Payne Ratner's oil advisory committee.

Arkansas—O. C. Bailey, chairman of the Arkansas conservation commission.

New Mexico—James Murray, lieutenant governor, and A. Andreas, state geologist and member of the conservation commission.

Illinois—Guy E. McGaughey, personal representative of the governor.

Louisiana—J. E. Farrell, representing the governor.

Colorado—W. H. McFadden, representing the governor.

Michigan—P. J. Hoffmaster, supervisor of wells, and H. M. McClure, chairman of the oil advisory board.

What all was discussed behind those closed doors during that two hour session has not been officially made known in its entirety.

Texas Leads Off

The Texas railroad commission already had issued a 15-day shutdown order, effective Aug. 15, for all its oil fields following the crude price reductions by Sinclair Prairie Oil Marketing Co., Humble Oil & Refining Co., and others.

Judging from the shutdown orders issued later by the other five southwestern states, the compact conferees discussed the Texas shutdown order; the probability that an acute emergency existed in the petroleum industry in the southwest; the possibility that some of the regulatory bodies might have been using some data for writing proration orders that might be slightly in error and that a general check should be made; that now was as good a time as any to make that check and to gather at the same time more data for future guidance of the regulatory bodies in writing allowable production orders, and the procedure to be used in launching the sweeping shutdowns.

It is suspected also in many quarters that there was at least a wee bit of discussion about what a beautiful feather the compact commission was putting in its hat; how thoroughly deflated would be those critics who had called the commission a "do nothing body"—if the shutdowns really corrected the situation.

The situation to be corrected naturally referred to the diligent conservation of a natural resource. The price received for that natural resource could not enter into the discussions, of course, because the compact itself states specifically that:

"It is not the purpose of this compact to authorize the states joining herein to limit production of oil or gas for the purpose of stabilizing or fixing the price thereof. . . ."

The Texas shutdown order, followed by press reports that oil regulatory officials of some of the other southwestern states were considering a similar move but would await a report of the emergency meeting of the compact commission, gave that particular session of the compacters quite a build-up.

Scores of oil men, both majors and independents, were attracted to Oklahoma City. Some of them, particularly the major company executives, undoubtedly were there to defend themselves if attacked in "open meeting." Others were there with resolutions in the pockets for presentation "at the proper time."

The executive committee of the Independent Petroleum Assn. of America shed coats and ties and went to work in a suite at the Biltmore hotel drafting a lengthy resolution full of recommendations.

A radio news commentator rushed over from Tulsa, set up his recording instruments, worked several hours with two oil men drafting a series of questions to ask the various representatives as he interviewed them at the council table for the radio audience.

But none of them had a chance, because this meeting of the compact commission did not follow the usual pattern.

There was no open meeting, except to adjourn the session. There were no flowery speeches praising the commission's work, no tossing of compliments back and forth.

Chairman Thompson, seated at the head of the council table, picked up the gavel promptly at 2 p.m., rapped for order and said to the hundred or more persons packed into the small room:

"All persons not having compact commission credentials will have to withdraw."

Governor Phillips added: "There are plenty of chairs in the representatives' chamber on the fourth floor for those who care to wait until this session is over."

Two hours later the guard at the door announced the chairman was calling for "the press." After the score or more of reporters had passed through the doors and taken seats, the doors then were opened to "the public."

Chairman Thompson again picked up the gavel, rapped two or three times, and said:

"This session of the compact commission stands adjourned."

Then came the reading of the following prepared statement:

"The sovereign producing states are capable of handling their own oil conservation problems. We firmly believe that they will promptly and properly control the production of oil within their own states. We feel that it will be done with certainty and in a manner that will get results.

"Each state will handle its own particular problem in its own particular way, subject only to the laws of that particular sovereign state.

"We reiterate that state sovereignty should not and will not permit encroachment upon its exclusive police power.

"Article 6 of the interstate oil compact provides in part—'The duty of said commission shall be to make inquiry and ascertain from time to time such methods, practices, circumstances and conditions as may be disclosed for bringing about conservation and the prevention of physical waste of oil and gas, and at such intervals as said commission deems beneficial it shall report its findings and recommendations to the several states for adoption or rejection.

" 'The commission shall have power to recommend the coordination of the exercise of the police powers of the several states within their several jurisdictions to promote the maximum ultimate recovery from the petroleum reserves of said states. And to recommend measures for maximum ultimate recovery of oil and gas.'

"Under the authority granted us by the legislatures of our states, and under the consent of the congress, we have exchanged our experiences, and have thoroughly discussed ways and means of conserving oil and gas in our own respective states; and each state will take such action as it sees fit, and each state will make its own announcements."

The roll call of states followed. Governor Phillips announced a 15-day shutdown or-

der was to be prepared. Chairman Schoeppel of Kansas said he would return to Topeka and confer with the other members of the commission but thought similar action would be taken in that state. Geologist Andreas of New Mexico said his chief, Gov. John E. Miles was in sympathy with a shutdown order and that one probably would be issued as soon as he returned to Santa Fe. Chairman Bailey of the Arkansas commission said he would return at once to El Dorado and meet with other members of his group, and hoped appropriate action would be taken in the near future.

Louisiana Surprises

Mr. Farrel read a telegram from Gov. Earl Long of Louisiana, pledging necessary steps. It is doubtful if half a dozen persons in the audience took that message seriously—that is why Louisiana's shutdown order caused such a wave of surprise in Mid-Continent circles.

Supervisor Hoffmaster of Michigan said he was returning to his state at once to confer with the commission.

Mr. McGaughey said he was representing only the governor of Illinois, who "was sympathetic" to the problems confronting the compact commission and the southwestern states.

Suddenly it was all over—the state officials had gathered up their papers and headed for their home grounds to begin making oil industry history.

Oil Imports Up 15% In 6 Months of '39

N. P. N. News Bureau

WASHINGTON, Aug. 21.—Imports of crude and refined oils amounted to 30,097,000 barrels during first six months this year, nearly 15 per cent over same period of 1938, Commerce Department reports.

Larger imports of foreign crude were mainly responsible for the increase, amounting to 16,288,000 barrels, a gain of 3,844,000 barrels over last year. Entries for immediate consumption were higher by 2,418,000 barrels, due to heavier shipments from Venezuela and Colombia received in New York and Massachusetts customs districts, while imports from Mexico at Galveston for refining in bond at Houston increased from nothing in the first half of 1938 to 1,406,000 barrels this year

Gasoline imports were negligible aside from an entry in March of 313,000 barrels, from Mexico into bond at New Orleans.

Two-Thirds of U. S. Wells Closed Down for 15 Days

N. P. N. News Bureau

TULSA, Aug. 21.—Two-thirds of the nation's current crude oil flow was stopped suddenly last week when the oil fields in six southwestern producing states were shut down by their respective regulatory bodies.

The states and their daily average production as of Aug. 12 are:

Texas, 1,361,689 barrels; Oklahoma, 440,950; Kansas, 170,825; New Mexico, 110,790; Arkansas, 64,035; and Louisiana, 250,430 barrels.

The almost concerted action of the regulatory bodies followed a series of crude price reductions by a few major and independent purchasers.

Theories on which the shutdown orders were issued ranged from a simple "emergency existing in the industry" and "indications of waste being imminent", to the necessity for obtaining additional engineering data for the guidance of authorities in preparation of future proration orders.

Theories notwithstanding, the dramatic action was a sweeping strike against the sharp reductions in price of the industry's basic commodity.

It was the most widespread withdrawal of a raw material from the world's markets in the history of any American industry.

Objectives of the strike include (1) prevention of price cuts by other purchasers, (2) eventual restoration of the cuts already made by purchasers, and (3) a breathing spell for the regulatory authorities while they planned for the future and sought answers to the criticism from some quarters that they are partially responsible for a situation that could bring about a price cut.

Entire Industry Submits

The entire petroleum industry in the southwest accepted the shutdown orders with a surprising degree of submissiveness.

There were a few who threatened court action when the Texas Railroad Commission led the way with its 15-day shutdown order. By the time the other five states had followed the lead of Texas, however, only one company—Lion Oil Refining Co. at El Dorado, Ark.—actually had gone into court to prevent the shutting down of some of its Arkansas wells.

The Texas commission probably forestalled court action by including in its order a clause providing for exemption of wells which might be damaged by complete shutdown.

Production from these exempt wells was estimated at the end of the week to total approximately 100,000 barrels a day. The commission has announced this oil will be charged against future allowables.

No provision was made for exemptions in the Oklahoma, Kansas, New Mexico and Arkansas orders. The regulatory bodies of the first three named states have had a number of applications for exemptions, but as far as is known have granted none of the requests. The Arkansas order automatically exempted stripper wells since the commission has no control over them. Some exemptions were reported having been granted in Louisiana.

Texas Tightens Up

This granting of exemptions in Texas threatened late last week to undermine the whole shutdown plan until Ernest O. Thompson of that state's regulatory body wired authorities in the other states that exemptions were being granted only where it was definitely known the wells would be damaged, and that even then the commission was making a careful check before issuing any exemptions for the wells or fields.

Not only was the entire industry submissive to the shutdown but in many instances apparently were secretly pleased. Particularly was this true, it was said, in the case of many of the major companies.

These larger companies for the most part have sufficient crude and refined products in storage to carry them through the 15-day period. Yet the shutdown will permit many of them to turn that stored crude into cash and thereby improve their cash position. They will go into the winter months in a far better statistical position than had been anticipated.

The independent producers also apparently see more ultimate good than immediate harm in the shutdowns. The Independent Petroleum Assn. of America, said to represent 90 per cent of the nation's independent operators, pointed out in a resolution passed by a special committee that the reductions in crude prices have brought the average price below the average net cost of producing oil as determined by a federal survey in 1934, despite the fact that since that survey costs have increased as a result of various taxes, higher wage scales, wage and hour laws and other causes.

This I.P.A.A. committee accordingly stated in its resolution that "as a temporary measure only," it favored the widespread shutdown.

The independent producers also see in the shutdowns the possibility that prices for refined products will move upward, thereby giving crude oil prices an opportunity to return to former levels. Since they feel that they would be producing their oil at a loss if the crude cuts become general, they are willing to forego the revenue for the 15-day shutdown period in the anticipation of a return to a profitable basis in the near future.

The small, independent refiners probably will be the hardest hit. Some of them may have to shut down their plants. They may run out of refined products entirely, but it is generally believed that there will be enough co-operation within the refining branch of the business to weather that situation.

The natural gasoline industry also will be virtually at a standstill as far as production of its product is concerned, but at the same time it will experience an almost complete depletion of its storage and will accordingly go into the fall and winter months in an enviable statistical position.

Labor Not Affected

Labor in the petroleum industry also is expected to suffer very little. Reports from state labor officials indicated that oil companies are keeping virtually all their workers on the payrolls. Some of the workers have been given a two-weeks vacation, while others have been put to work cleaning up the properties and making repairs that usually are not made until along in the winter months. The number of workmen actually discharged, it is reported, has been surprisingly small.

The oil industry generally predicts that this week will be the test period for the shutdown. Greater pressure probably will be brought in the regulatory bodies for exemptions. If these exemptions get too numerous the whole thing may collapse. If the shutdowns hold it is predicted that at least 33 million barrels of crude that otherwise would have been produced will remain in its natural reservoir. That crude will be replaced in large measure in the nation's markets by oil taken from storage.

Refined Markets Feel Effects of Shutdowns

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was said.

It was believed that heavy withdrawals of light fuels from storage for use as cracking stock was not likely in the light of present conditions. In the first place, only virgin fuels from skimming plants could be used as charging stock for cracking stills and a survey of cracking stock supplies indicates that they are located in those areas where refiners are in the best position to last through the shutdown period on stored crude.

While the use of lighter grades of the so-called light fuels would create a cracking problem for most refiners, it was believed that using lower gravity fuels as cracking stock might cause a considerable dent in inventory of fuels up to 30 gravity.

Several refiners said, however, that shutdown of their refineries was imminent. Two small plants in the West Texas-Panhandle area were expected to shut down within a day or two, the owners said. Reports from other Mid-Continent districts indicated refiners were making every effort to stretch their crude supply through the shutdown period.

Shutdown of several small plants in the Wichita Falls, Tex. area was forestalled when the Texas Railroad Commission granted exemptions in that area to wells which would be damaged by water encroachment during shutdown. But crude supply from some of these exempt wells was considered uncertain due to possible revision of the commission's exemption policies.

After the last barrel of crude has been refined, Mid-Continent refiners were expected to have sufficient petroleum products, accumulated prior to the production holiday, to carry them until the crude production curbs are lifted.

While Louisiana-Arkansas refiners have only 7 to 10 days' supply of crude on hand, their gasoline stocks are sufficiently large to supply 13 to 14 days of normal demand. Some Mid-Continent refiners may not be in as good a supply position as these Louisiana-Arkansas refiners, but efforts were being made to bolster current supplies with outside purchases and trades.

Tank car gasoline markets reacted immediately to the shutdown of southwestern oil wells, although the extent of this reaction was difficult to determine. For many weeks before the crude production curb, gasoline had been moving in undetermined quantities at prices that ranged from an eighth to five-eighths "below the low market date of shipment". No "open spot market sales" or quotations were reported at these prices. This discount type of a sale, contingent upon the so-called market price when shipment is made, has practically disappeared as both refiners and brokers do not appear to want to gamble on what the market at any future day, even a few days off, may be.

Open spot market quotations were slower in their upward reaction, but in some districts advances of 0.125 cent or slightly more were reported. Dock prices for East Texas unleaded "third grade" advanced 0.5 cent last week, to 4 cents, exclusive of taxes.

Scarcity of natural gasoline—the product that supplies much of the "oomph" to motor fuel—was expected to play an important part in the motor fuel supply picture.

Current production of natural gasoline dropped considerably after the first few days of the production holiday. Without raw gas to operate on, many gasoline plants were forced to shut down. The only plants left operating were those which obtained their raw materials from gas lines and those wells exempted from the shutdown orders. During July, output of natural gasoline in the six southwestern states which shut in oil fields—translated into yield of grade 26-70—was approximately 98,500 barrels daily (4,137,000 gallons). The shutdowns, it is estimated, would cut daily natural production of 26-70 grade by approximately 66,600 barrels (2,797,000 gallons)—that is, production would amount to only about one-third the normal output in these states. If the shutdowns last 15 days, this would mean that nearly a million barrels less of natural would be produced.

Within a day or two after wells had been shut in, current supply of natural gasoline had been depleted, leaving only storage gasoline to supply current needs of refiners. Natural gasoline held in storage at the Gulf Coast is not available to inland refiners because of its location and high transportation costs. Storage gasoline at natural plants was about the only available supply and volume of this gasoline was small.

Buyers soon found that the natural gasoline in storage at natural plants could not be purchased at the same price as former current production.

In many cases the gasoline had been stored for some time and the owners felt they should realize the original cost of the product, plus storage costs and a fair profit. Higher prices, finally reaching 3.75 to 4 cents a gallon for the 26-70 grade, attracted some of this natural gasoline out of storage. The 3.75 to 4 cent price represented an increase of 0.75 to 1 cent over prices paid for Grade 26-70 prior to the shutdown.

But refiners, in an effort to stretch their motor fuel supplies still further, attempted to increase motor fuel gallonage by using still more natural. Scarcity and the 0.75 to 1 cent advance in natural prices, however, soon discouraged this type of buying.

Other refiners, needing the natural to bring gasoline specifications up to present octane and distillation standards, found it difficult to obtain sufficient supplies for their needs. As a result the motor fuel shipped from some Mid-Continent refineries the next week or so may have a slightly higher distillation curve than formerly. A few refiners may find it difficult to supply the more highly volatile gasoline now being required by northern jobbers.

Export buyers of natural gasoline took a look at the 0.75 to 1 cent advance in Grade 26-70 natural prices and in some cases held up placing their orders.

Gulf coast refiners operating on heavy crude are more dependent on natural gasoline than Mid-Continent refiners. Some need as much as 20% of natural gasoline to bring their refined gasoline up to marketable specifications. So far they have been able to obtain limited quantities of natural from plants drawing raw supplies from exempt wells and from storage. Should these wells be shut in and the nearby natural plants closed, some Gulf coast refiners may find it almost impossible to convert unfinished refined gasoline into motor fuel, it was said.

Some users of butane — the bottled gas used for cooking and heating by home owners beyond the city gas mains—were without fuel last week as dealers were unable to replenish their stocks from natural gasoline manufacturers. Little could be done for these customers, it was said, until natural plants can be re-opened.

Withdrawal of gasoline from storage and a much improved statistical position were expected to be the outcome of the unprecedented action by states in shutting down oil wells in the southwest. The degree of improvement, however, hinges on the effectiveness of the shutdown orders, action of state regulatory bodies in trying to balance crude supply with demand after shutdowns are discontinued and the degree to which refinery operations are increased when crude production is resumed.

California Watches Southwest Closings For Market Effect

N. P. N. News Bureau

LOS ANGELES, Aug. 19.—California oil marketers are hopeful that the shutdown of Mid-Continent crude oil production will strengthen product prices in markets where the west and east coasts are competitive.

Although a 10,000-ton, 10-knot tanker could fill the gap with deliveries of California crude or products to the Gulf in 18 days and to the eastern seaboard in 21 days, observers believe there is little likelihood that West Coast suppliers will take this opportunity to unload surplus stocks in either Eastern or Atlantic Foreign markets.

Some suppliers interested in the offshore markets reported slightly higher quotations on products for shipment eastward through the Panama Canal, following announcement of the shutdown. In recent months there have been several large-scale movements of fuel oil to the Atlantic Coast by western affiliates of eastern companies and this may be stepped up or extended to include other products if an actual shortage develops.

It was also reported that several Mid-Continent refiners were already looking to the local industry for supplies needed to complete existing contracts. Since the shutdown became effective, several inquiries have been made for quantities of stabilized casinghead gasoline, it is reported.

For the most part, local suppliers were hopeful that the enforced curtailment will give support to the weakened bunker oil markets on the Gulf and Eastern Seaboard; a condition which has caused regular customers for California fuel and diesel oil to purchase a large share of their requirements elsewhere.

Brokers Turn to Illinois As Shutdowns Cut Supply

N. P. N. News Bureau

CHICAGO, Aug. 21. — With virtually all sources of gasoline supply from independent refiners in the Mid-Continent field cut off, most Chicago brokers said they were relying almost entirely on Michigan and southern Illinois refiners to supply current needs. The northern refiners, in turn, were taking advantage of the situation by advancing their quotations on gasoline from 0.125 to 0.25 cent. Current prices for low-octane gasoline f.o.b. southern Illinois plants range from 5.375 to 5.50 cents. Most refiners in Illinois said they had only a small supply of gasoline while the position of Michigan refiners was little better.

Crude production in Illinois reached a new peak of 300,000 barrels daily during the past week, making it apparent that any efforts by the various oil associations to control oil production within the state had been in vain. Possibility of a special legislative session being called to consider Illinois oil conservation measures also grew dimmer although the governor might give this matter some consideration in conjunction with the special session he has called to consider the state pension law.

One of the largest independent refiners operating on Illinois crude who has been supplying most of the independent jobbers in the Chicago vicinity with their gasoline supplies has been so seriously handicapped by the lack of natural gasoline used for blending purposes, that he is now restricting shipments entirely to contract customers. The refiner is said to have ample crude in storage.

Many Chicago brokers reported that most of the jobbers whom they supply have sufficient gasoline stocks to cover current requirements and that they have not registered any appreciable concern over Labor Day motoring demand. Tank car marketers early this week said they were unable to quote at less than five cents on regular grade gasoline originating in the Mid-Continent field and that these quotations were made contingent on refiners' acceptance of orders. A few said they looked for termination of the shtudown order before the 15-day period expires.

While actual figures on gasoline and crude stocks of the larger refiners in the Chicago district were not available, reports were that they were well supplied and could last well beyond the period covered by the shutdown order. Chicago offices of some smaller refiners with plants in the Mid-Continent field said they were limiting their shipments entirely to contract customers and were doubtful if they could continue to operate for the full length of the shutdown period.

An emergency order by P. J. Hoffmaster, Michigan conservation director, which was to become effective early this week, cutting production in prorated fields approximately 50 per cent caused little concern among refiners who said they were assured by the state oil conservation department that they would have ample crude supplies to maintain present operating capacity and fill commitments for the coming month. Some reports were that the Michigan order might be less drastic than was expected.

A further meeting to determine the advisability of an extension of the 21-day emergency order will be held within the next two weeks, it was announced.

Crude Supply at Refineries Is Sufficient for 15 Days

N. P. N. News Bureau

WASHINGTON, Aug. 21.—There was an average of slightly less than 15 days' supply of crude on hand at refineries in the U. S. (not including crude stored at tank farms or in pipelines) on June 30, last date for which Bureau of Mines figures are available.

Total of crude stocks at U. S. refineries on June 30 was 51,856,000 barrels which, at the daily average rate of crude runs of 3,490,000 barrels during June, was sufficient for 14.8 days' supply at that time.

Supply of crude at refineries in Texas on June 30 amounted to 11 days on the basis of June throughput. Kansas refineries had about 10 days' supply; Arkansas refiners, 13 days; Louisiana, 23 days; and Oklahoma, 11 days.

Of course, for some refineries, especially the larger plants, crude stored in tank farms was almost as accessible as storage "at refineries."

Tabulated below are daily average refinery crude runs for June by states, with days' supply of crude at such refineries on June 30 figured on June average runs. Also given—but not included in days' supply—are crude stocks at tank farms and in pipelines in these states. (Note: Stocks figures are by states of location, not by grades or origin.)

State	Daily average crude runs in June (Barrels)	Days crude supply, at refineries June 30	**Crude stocks at tank farms and in pipelines June 30 (Barrels)
Arkansas	31,466	13	1,348,000
California	567,665	17	25,137,000
Colorado	6,432	45	222,000
Georgia*	4,800	89	.....
Illinois	159,000	8	11,619,000
Indiana	222,365	5	1,787,000
Kansas	137,201	10	5,098,000
Kentucky†	26,201	21	640,000
Louisiana‡	72,132	23	7,772,000
Maryland	36,901	35	.....
Massachusetts§	37,765	24	.....
Michigan	45,765	7	1,052,000
Missouri	23,600	7	*‡4,120,000
Montana	20,201	18	950,000
New Jersey	218,301	24	677,000
New Mexico	4,565	4	518,000
New York	.....	..	132,000
East	22,732	23	.....
West	21,533	16	.....
Ohio	.....	..	6,828,000
East	36,133	2	.....
West	69,166	18	.....
Oklahoma	169,766	11	51,385,000
Pennsylvania	.....	..	2,092,000
East	218,066	20	.....
West	48,933	8	.....
Texas	1,137,066	11	71,781,000
Utah	8,466	24	.....
West Virginia	8,733	3.5	2,130,000
Wyoming*†	34,600	29	14,848,000
U. S. Daily Average	3,490,000	14.8	210,136,000

**Not included in figuring days' supply at refineries.
*Includes Delaware, South Carolina and Virginia. †Includes Tennessee. ‡Includes Alabama. §Includes Rhode Island. *†Includes Idaho, Nebraska and South Dakota. *‡Includes Iowa and Nebraska.

Price Shading Fades in East

N. P. N. News Bureau

NEW YORK, Aug. 21. — The shutdown of southwestern production fields as yet has had only the effect of eliminating the occasional reports of shaded price offerings of gasoline in Atlantic seaboard markets, with general market levels unchanged, according to reports of traders.

Prices for gasoline, kerosine and gas oil jumped 0.125 to 0.5 cent in the Gulf market Aug. 21, when four refiners withdrew from the market, and three reported they were holding for higher prices.

The Gulf and eastern seaboard markets generally are considered as a unit, because the former provides the base of supply for much of the petroleum marketed on the east coast. Many suppliers said they believed that eastern markets would shortly reflect the higher quotations at the Gulf. A few marketing companies who ship their products from the Gulf by tanker said that they had been notified by several independent Gulf refiners that they would be unable to handle scheduled tanker loadings in the next three weeks because of the shortage of crude and natural gasoline for blending.

Despite the situation at the Gulf, observers here said they feel no concern on the possibility of a gasoline shortage. Most of them said that about the only effect that will be felt on the east coast will be a somewhat necessary reduction in gasoline stocks, and a reduction of refinery crude stocks.

Chances of California Law Hurt by Shutdowns

N. P. N. News Bureau

LOS ANGELES, Aug. 19. — Virtually complete shutdown of oil fields by state authorities in six southwestern states may adversely affect the chances of California voters approving the state oil proration law, enacted at the recent session of the California legislature but now being attacked by referendum petitions.

Proration opponents were making capital of the unexpected ammunition supplied by the Mid-Continent shutdowns. Already, the California public was having its attention called to reported boosts in wholesale gasoline prices resulting from the shutdowns, and this was tied into claims that the California oil law would bring about "30-cent" gasoline.

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Shutdown of Oil Fields May Denote a Frankenstein Growth of Government, Reaching for More Power

By WARREN C. PLATT, Editor

Most every one in the oil industry is puzzling over the general shutdown of all oil wells in the Mid-Continent and Gulf Coast areas.

Every one asks what is it all about? What started it and how will it wind up?

Oil men want to know if crude prices are going back the 20 cents they have been cut and will all under-the-market crude be eliminated?

Will refinery prices go higher to a profitable level to the refiner? If so will prices to dealers and consumers advance also?

Does this great exercise of government power in the shutting off of two-thirds of the country's supply of crude oil, threaten far greater measures of government control that may sweep up the entire oil industry?

Will there be refinery allocation of products and if so a measure of price fixing at the refinery?

Will the seeming success of the oil states in pushing so far beyond ordinary conservation effort, invite or dare the ever power-hungry officials at Washington to push all the harder the Roosevelt-Ickes bill for absolute federal control over oil production and possibly all oil operations, which bill was introduced in the closing days of this last Congress?

What will be the attitude of the New Deal's Department of Justice if the states thus succeed in raising the price of oil, if that is their purpose, or if the shutdown should seem to result in that?

The New Deal has laid about it so vigorously with indictments and suits, attacking doctors, and health authorities, automobile companies, the movie industry and others, that the question is a pertinent one. It is especially pertinent inasmuch as the New Deal now has two grand juries probing into the oil business and has been again seriously considering a third one to overhaul oil company operations on the east coast.

What kind of national political issues may result from this big oil shut down especially as it has been led, if not instigated, by Texas, the home state of that "Sinful, Whiskey-drinking, Poker-Playing Old Man," Vice President Garner? Rumor has it that one reason for Attorney General Murphy's sudden return to Louisiana, just after receiving a degree from its university when a guest of its now ex-governor, was because the "Louisiana Gang" had shown signs of siding with Garner, and a good stirring around by a grand jury, even though rather late, might be in order?

The grand jury investigation of the oil industry, three years ago this spring was suspected of being aimed at the then promising Republican candidate for president, Oil Man Alf Landon, as well as some prominent oil Republicans of Pennsylvania who were seriously threatening the Democratic power there and who succeeded finally in defeating it.

Then there is the attorney general of Texas, who last week plunged into the shutdown situation with loud outcries about "trusts" and "monopolies." Which side of the problem is he going to be on — the side that wants prices returned to their old levels or is he perchance, for "the peepul" and lower prices? There is no telling what a Texas attorney general may do when a fat anti-trust case is in prospect. Their conduct in the past has written a pretty sorry record that—in the past at least—has suggested there was more regard for the political value of a case or perhaps the fees for friendly attorneys, than for the public interest. One can only hope the present encumbent is different.

Are next year's political battles, especially in Texas, going to be fought by a manhandling of the oil industry under the classy label of "conserving a natural resource" or of getting cheaper motor fuel for the public, or both?

This is a long list of questions but they are running through the minds of many men in the oil industry and there is right good cause for these questions. One would need a real gift of prophesy to answer them. However, there are some basic facts that can be set down and which, perhaps, will permit the average oil man to draw some conclusions or make a few guesses on his own account.

Undoubtedly the primary cause of the developments that brought about the shut-down, is the unrestrained and ever-growing production in the new Illinois fields. That state rejected a conservation law this last winter. Its wells have been flowing wide open. It is estimated they will be producing in the next few months more than 350,000 barrels of new crude oil a day. Much of this new oil has been selling considerably under the posted prices of major buyers. Gasoline from this Illinois crude has spread out through adjoining states and set new low price levels.

Another primary cause has been the failure of the conservation commissions in the Southwestern states to set low enough production limits and then to enforce even these limits. Prominent oil producers have been warning these commissions for some time of the unnecessarily advancing allowables and the seeming acquiescence in the violation of some of the commissions' orders. The surplus crude above the actual needs of the buyers, had to find buyers through a lower price. It has been estimated that more than a half million barrels a day of under-the-market crude oil has been moving from the fields in the area from the Gulf coast up to the fields in Michigan. Much of this crude has been sold at 30 and even 40 cents a barrel below the price paid by the major companies. Furthermore, much of this under-the-market crude has been converted to gasoline for the benefit of price-selling gasoline marketers who are competing with the national-branded

gasolines made from crude bought at posted prices.

Another cause was that under a new attack in court the Texas Railroad Commission was threatened with being stripped of its powers to regulate the flow of wells beyond, at least, a certain point. A firm of Independent producers had banged down the Commission's authority and got a court order to open up their East Texas wells more. This forced a big company to get a similar order so as to protect its adjoining leases. The prospect of other producers getting similar exemption orders from the courts left the Texas Commission panic-stricken.

Then the Sinclair interests, because they were losing money on the existing price structure, cut the crude price 20 cents a barrel. That price cut was at once followed in Texas and Louisiana, where it only operates, by the Humble and then by Stanolind, and smaller companies.

So the Texas Commission ordered all its wells, with some exceptions, shut down and seemingly, prevailed on the commissions of the other nearby oil states to do likewise.

The official explanation for this drastic exercise of alleged power was to "get time to survey the whole situation and see what data can be had to work out valid and proper orders" to control the flow of the wells. Whether this explanation, however it may be worded, is sound legally remains to be seen. So far, only one company, in Arkansas, has gone to court. The oil men seem willing to go along with the commissions for a while at least and see what may come of the experiment.

But no matter what the official explanation may be there is little doubt in every one's mind but that the price cut was the immediate cause of the shutdown and that a price advance is the immediate object of that drastic exercise of an alleged government power.

So many people are directly and indirectly concerned with the price of crude oil in these big oil producing states, to say nothing of the vast amount of tax money collected from the industry, partly based on price, that the price of crude oil is of vital importance to the whole people of the oil-producing states as well as to the state governments themselves. Any particular drop in the price of crude oil is proportionately almost as devastating to the pocketbooks of the big oil states as would be a similar drop in the price of government bonds to our New Deal government and the country's banking system today.

Conservation of oil and gas, as developed in this country and particularly in the Southwest, is on a sound, legitimate engineering basis. Regardless of any casual critics that, in the opinion of most every one who has had any intelligent contact with Conservation at all, is true and it has been so recognized by many courts. Naturally, this proper conservation so far has had an effect on price, and which has been satisfactory to most persons in the industry.

But where does real conservation end and price manipulation begin?

That is the question that is pushing for an answer in the present situation. There seems no way to draw a definite line between the two at the present time. It is mostly a matter of opinion of the conservation officers plus what each court that gets a case may say. To what extent it may be possible to draw a fine line in the future remains to be seen.

Of the present shutdown of so many wells producing more than two-thirds of the country's oil supply, one would seem justified in saying that it is undoubtedly the most drastic exercise of alleged government power over a natural resource and over private property in the history of the oil industry, and, for all we know, in the history of any industry.

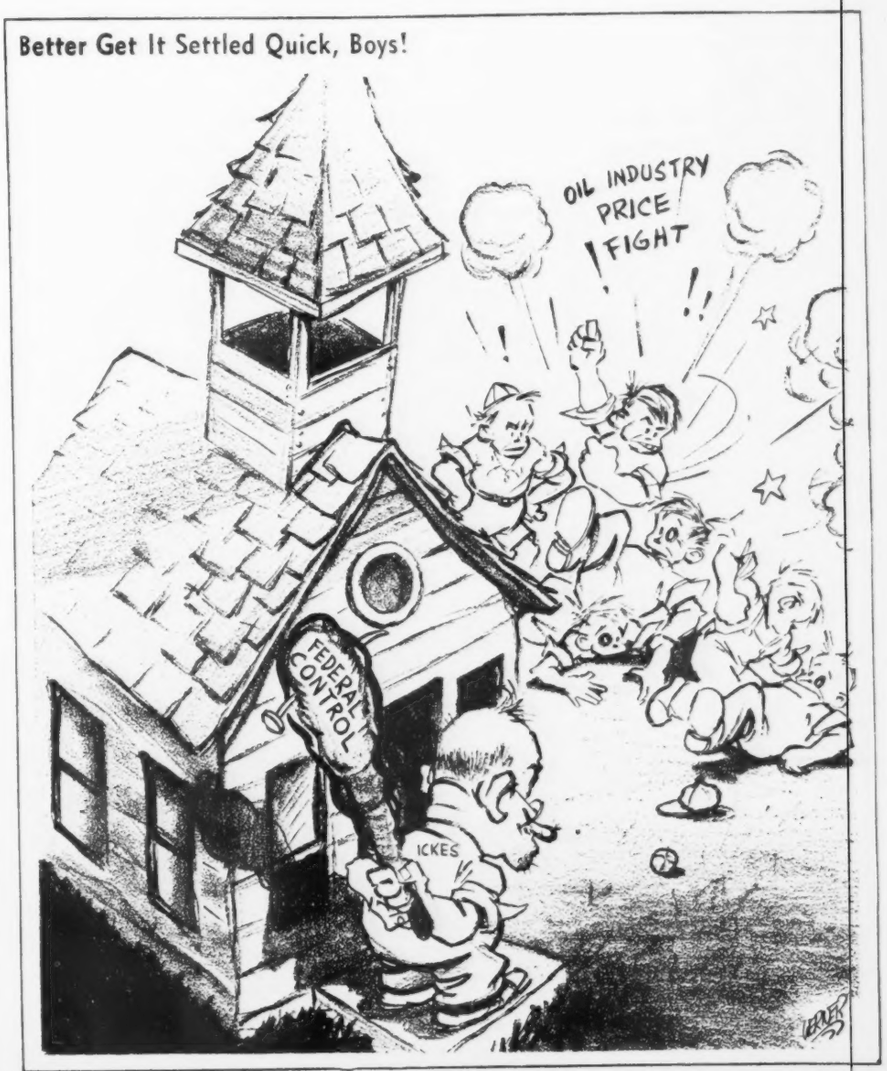
The oil, under our present laws, belongs solely to the producers and to the land owners both of whom one may assume from the record, are complying with all the latest practices of good production engineering required by government authorities, and, at least so far as they individually are concerned, are not wasting a drop. There may have been too much oil produced but was there any waste at least by the producers and land owners?

Then, when price drops, and the income of some oil men and of states is reduced, the government forbids these owners to make use of their property to raise the money to buy their bread and butter and pay their debts.

Not even in dealing with the so-called farm problem has the totalitarian New Deal so baldly, if memory is correct, commanded the farmer not to harvest and sell his crops. What has been done in relation to the farmer has been gilded with legal rigomarole, some bonus-paying and other forms of a coercion that might be just as drastic so far as the farmer is concerned as this oil shutdown business, but at least there seem to be a lot of words on a statute book to give justification.

Regardless of the causes that brought the oil shutdown about, it would seem to a layman that the governments of these oil states, made a most unwarranted and arbitrary use of their powers UNLESS all this is but one of those historically "evolutionary" steps toward government—either state or national, but government as representing all the people—taking over a control of our natural resources that, for practical purposes, would be similar to the ownership declared for oil in so many of the radical countries today.

It seems fair to say that the great danger, if danger it be, that may come from



—*The Daily Oklahoman*

this arbitrary exercise of alleged government authority by these oil states, lies in their being a long step toward increasing government regulation of the oil industry. If producing oil at 80 cents a barrel as against $1.00 a barrel, is "wasted" in the eyes of those who have to make a living from the price, both individuals and government, then it would seem to follow that the refinery price of gasoline of 5 cents as against a possible 6 or 7 cents might also be a "waste," which would finally take one to the price to the consumer.

Involved in the definition of "waste," also, would be the "use" of this natural resource, not just whether burning fuel oil under a boiler is "waste" or under a domestic furnace (and thus keeping mother out of the coal bin), but whether making fuel oil at all is "waste" compared to it being converted into another product of alleged greater utility. This gets us also to whether "third grade" gasoline might not be waste as against 85 Octane when used in a modern auto engine?

Since the creation of the income tax twenty years ago, government has become more skillful every year at finding ways to get at the pocketbooks of the people. The spending of these growing vast sums has put increasing power in the hands of those in public office. The code period of NRA particularly opened to these officeholders new vistas for money and power.

Maybe it is all in the right direction and for the best interest of country and civilization. But, according to one's recollection of a smattering of history, the seizing of power by government not specifically authorized by a well-informed people, no matter how much it might at the moment seem to be justified, leads to a growing subjugation of the people by their machinery of government.

So where is the oil industry going to get off, and the consumers of the country going to be, if the governments of oil producing states halt the normal and legal operations of the oil industry in order to get higher prices from which to collect more taxes for their own greater aggrandizement, as well as hand out generous bounty to voters in their states?

I have never been one of those opposed to intelligent conservation and I have long praised and defended the conservation work of the various oil producing states, especially that of Texas. But through all these years of conservation's development I have feared attempt would some day be made to exercise authority beyond the bare needs of sound conservation and thus make of our conservation machinery a governmental Frankenstein. Have the oil states, by this last price move, not shown their machinery to hold the threat of a Frankenstein and is not the federal government reaching longingly for its levers and throttle, with the grasping fingers of ex-Oil Administrator Ickes?

As to the immediate effect of the shutdown—undoubtedly it will be most beneficial to the whole industry, a God-send as it were. The price of crude oil will undoubtedly go back to the old price or higher; the various state commissions will crack down hard and hold production to actual consumer consumption with no periodic surpluses; the refinery tankcar markets should go up to profitable levels and stay there through the fall and winter; and, undoubtedly, depending on the extent of new efficiencies in oil marketing, tank wagon and retail prices will advance.

Whether these expected—and well justified—price advances will draw lawsuits from the New Deal or the attorneys of any states, no one knows. Whether any auto clubs or state's attorneys will stir up any strictly consumer states to fight this "conservation" effort of the oil states, only time can tell.

For the moment, the industry should get the much needed better prices, but the future? That is in the lap of the gods and they may be quite hungry for more political power.

Connally Law Can be Lifted In Case of Shortage—Ickes

N. P. N. News Bureau

WASHINGTON, Aug. 21. — Interior Department will support "valid" state orders, according to Secretary Ickes, who also warns that if the shutdown of southwestern oil fields creates a "shortage" of crude or petroleum products, the Connally "hot" oil law can be suspended.

The Connally Law, prohibiting shipment in interstate commerce of oil produced in violation of state law (or products of such crude), presumably could be used against oil produced in violation of the shutdowns *if* such orders are found valid. But so far no states have called for help of the Connally Law in the shutdown situation.

"Should there develop a lack of parity between total supply and consumptive demand," said Secretary Ickes, "the prohibition against interstate shipment could be made inoperative during the period of shortage."

The secretary went on to say that no national shortage of gasoline or other petroleum products was anticipated, even with the shutdown of about 60 per cent of the producing wells as he had been informed that "very large" stocks of crude and gasoline were available.

Power to suspend the Connally Law rests with Secretary Ickes, should he make a finding that a "shortage" existed, because President Roosevelt has delegated to the Secretary of Interior the duty of administering the "hot" oil law.

Text of the suspension clause in the Connally Law (recently extended until 1942), follows:

"Section 4. Whenever the President finds that the amount of petroleum and petroleum products moving in interstate commerce is so limited as to be the cause, in whole or in part, of a lack of parity between supply (including imports and reasonable withdrawals from storage) and consumptive demand (including exports and reasonable additions to storage) resulting in an undue burden on or restriction of interstate commerce in petroleum and petroleum products, he shall by proclamation declare such finding, and thereupon the provisions of section 3 shall be inoperative until such time as the President shall find and by proclamation declare that the conditions which gave rise to the suspension of the operation of the provisions of such section no longer exist. If any provision of this section or the application thereof shall be held to be invalid, the validity or application of section 3 shall not be affected thereby."

Arkansas Schedules Hearing Also for Aug. 26

EL DORADO, Ark., Aug. 21. —The Arkansas oil and gas conservation commission has issued an order for a statewide proration hearing here Aug. 26, at which time the engineering data obtained during the statewide shutdown of flush fields will be reviewed and evidence taken for the preparation of an allowable order for September and October. The commission has announced also that at the hearing it will consider the advisability of adopting a state tender system similar to the one used by the railroad commission in Texas.

Texans Blast Ickes 'Threat'

AUSTIN, Tex., Aug. 21.—The statement credited to Secretary Ickes in newspaper dispatches that he might have to suspend the Connally "Hot" Oil Act (if a shortage develops) during the shutdown of oil fields in the southwest drew the fire of two Texas railroad commissioners late last week.

Col. Ernest O. Thompson as much as said, "let him do it, it will not mean anything."

"If Mr. Ickes suspends the Connally act," Thompson said, "it will mean nothing. It is not operating. His action will be only an empty gesture. Oil moves freely everywhere except in East Texas where the only federal tender board exists, and that field is completely shut down."

Col. Thompson also reiterated his oft-repeated statement that the states are capable of handling their own problems effectively without federal control, that the states have the power to run their own affairs, and that "it is just a case of using that power that is theirs without running to Washington for everything under the sun."

Commissioner Jerry Sadler wrote and fired at Ickes a lengthy telegram that bristled with defiance.

"I must warn you, Mr. Secretary," the newest member of the Texas commission wired in part, "that the desire for federal control which long has been your objective does not conform to the ideas of the people of the oil producing states or to the rest of the nation. I fear your lust for power in this connection is coloring your viewpoint and is in no way in accord with the views of our illustrious president . . .

"The oil situation is well in hand. Although I am not familiar with your many and complex duties, I nevertheless feel that they are sufficient to occupy your full time and attention. Your interest in the welfare of the consumer is commendable. But your domination or interference in the present situation is completely, wholly and entirely uncalled for."

Oil Shutdowns Hint Further Control, Says Press

Editorials View Action by States As 'Price-Fixing,' Not Conservation

N. P. N. News Bureau

CLEVELAND, Aug. 22. — Further control of oil—either state or federal—is predicted as a possible result of the present crude production shutdown in southwestern states in newspaper editorial comment both in the oil country and in the consuming states. Several express the opinion that production control cannot be had without price control.

"The question which will take form from this emergency" says the *Tulsa World*, "is whether the federal government shall move in and take a more dominating position, or whether the oil industry itself, through agreements by states will keep a firm hand on the whole business. Unquestionably, Secretary Ickes, an advocate of stronger federal control, welcomes this opportunity to advance his doctrine."

The *Washington Post* states that "the price problems of this (oil) industry are extraordinarily complicated, but they will certainly not be simplified by the efforts of state authorities to have a hand in determining those prices. The inevitably serious economic disturbances created by the shutdown orders will most probably be cited by advocates of federal regulation of the oil industry as one more argument in favor of their cause."

While some editorial comment in papers in the oil states approved the drastic shutdown action of the states, the *Washington Post* comments that "it is often difficult to draw the line between production control as a conservation measure and production control as a means of raising prices." Citing the Agriculture Department's soil "conservation" program as a "classic example of the ease with which a price-raising program can be executed in the name of conservation," the *Post* warns that "similarly, states that undertake to conserve their oil resources may easily be diverted from this laudable objective by efforts to control prices."

"The current oil mess," says the *Tulsa Tribune*, "plays directly into the hands of the socialistic rabble-rousers who see in the present condition of the industry evidence that the industry cannot be operated under private management in the interests of the general public, that state control of production is not sufficiently broad, and that federal control and eventual federal ownership of the entire industry must soon be established."

Adding its editorial voice to the threat of further governmental regulation in the oil industry, the *San Antonio Express* warns that if existing self-control under state regulation breaks down, "the alternative would be federal control".

"As with all exhaustible natural resources," the *Express* editorial states, "production-control is necessary to effective conservation—and that cannot be had without price control. Therefore, the oil interests involved should get together, adjust their differences and restore an ordered peace to their industry. Otherwise the Government will feel compelled to take the situation in hand. Certainly nobody—and least of all the producers and distributors—desire federal control."

"Production control," remarks the *New York Herald-Tribune*, "is a pretty crude device when it takes as arbitrary and inequitable form as it is taking in the present instance."

Cites Ban on Price Fixing

The provision of the recently extended Interstate Oil Compact prohibiting united action to limit production of oil or gas to stabilize or fix prices, "was honored more in the breach than in the observance in this particular instance despite the announcement from the commission that each state would handle its own particular problem in its own particular way," says the *Washington Star*. "There may be a cloud over the legality of the shutdown," the *Star* adds, "but there is little doubt of the efficacy of the extreme measure taken. Petroleum officials of the Interior Department believe there is a question involved as to how far production may be regulated by a state to control prices, but the Federal government is without jurisdiction in that issue."

"The Governor Understands" is the title of an editorial in the *Daily Oklahoman* of Oklahoma City which states that "Governor Phillips fully realizes the serious effect of diminished oil revenues upon the fiscal policies of his administration. It warns that "Oklahoma will encounter a major problem when oil ceases to be one of the state's major sources of revenue". The drop in revenues caused by the shutdown was termed a "portent of the day when oil shall cease to be a major source of revenue and when business and agriculture will have to assume most of the burdens of taxation".

Commenting on Texas Railroad Commissioner E. O. Thompson's remark upholding state sovereignty, the *Dallas News* holds that "assumption of prerogative entails parallel assumption of responsibility. In other respects, states have wholly or partly lost their police and other powers to federal authority, because they were delinquent in the assumption of responsibilities to public welfare. It would be regretable if this should happen in the instance of petroleum, but it could happen, and there are those in the federal government system who would not be averse to assuming both the responsibility and authority."

Sees Threat of Federal Control

Failure to co-operate to meet the present emergency, the *Dallas News* warns, will "bring federal regulation one step nearer, and it may not be a long step."

Texas Railroad Commission Sadler's suggestion of a boycott against crude price-cutting oil companies and Senator Hill's advocation of the ending of proration "smack of the kind of impractical emotionalism that characterizes too much of our public policy", another *Dallas News* editorial stated.

"To an outsider," editorializes the *Cleveland Plain Dealer*, "it would seem that if any industry needs regulation it is oil."

Chief responsibility for the price cuts, states a front page editorial in the *Fort Worth Star-Telegram* of Aug. 14, "rests on the shoulders of Standard Oil Co. of New Jersey which controls Humble of Texas, Standard of Louisiana, and Carter Oil Co., Inc., operating chiefly in Oklahoma and Illinois. Within recent weeks it elected to block the efforts of Harry F. Sinclair of the Consolidated Oil Co., followed by 19 of 22 companies for stabilization of business at the levels which existed before last week's cuts by a half-cent per gallon raise in gasoline prices. The judgment of the entire industry was vetoed by the Standard of New Jersey, which carried along with it two companies which were at its mercy in their operating territory. The New Jersey's size enabled it to block the efforts of the rest of the industry which would have protected crude prices against what is now happening. When, on this failure, the first crack appeared in the crude price structure, the Standard of New Jersey threw its entire weight on the side of economic destruction.

States' Self-Defense Measure

The proposed shutdown (then not in effect) was endorsed by the *Star-Telegram*, saying "Radical as the remedy proposed may be, it commends itself as an effective vehicle for self-defense by the oil states."

Commenting only on the reduction in crude prices, the *Houston Press* said that "whether the situation will further the demand for federal control of the industry, or enable the producers to get out from under the current over-stocks and thus right the situation speedily before too much damage is done, seems to be in the lap of the gods right now".

C. F. Roeser Resigns From API Committee

FORT WORTH, Tex., Aug. 19. —Charles F. Roeser, president of the Independent Petroleum Ass'n. of America and an independent oil producer, has resigned as a member of the executive committee of the American Petroleum Institute.

In a letter to President Axtel J. Byles of the A.P.I., Mr. Roeser said he had accepted appointment to the executive committee in the hope that it would furnish an opportunity to present the independents' viewpoints to the group of major executives, but that he was convinced that an effort through that agency was futile.

Ohio "Gas" Demand Up 12%

COLUMBUS, Aug. 19.—An increase of 12,673,857 gallons, or 12.03 per cent in gasoline consumption in Ohio was reported for June over June a year ago under the state tax law. Consumption in June totaled 117,998,520 gallons, compared with 105,324,663 gallons a year ago.

In the six months ended June this year consumption totaled 611,927,271 gallons, an increase of 36,153,255 gallons.

Oil State Officials Blamed For Ignoring Warning Signs

N. P. N. News Bureau

TULSA, Aug. 21.—A considerable amount of criticism is being laid at the doorstep of a few of the state regulatory bodies as a result of the unprecedented situation into which the oil industry in the southwest has been plunged.

The critics charge the state officials with failure to heed the many warning signs that have appeared before them from time to time.

Had these signs been heeded, it is said in many quarters, they could have maintained by a little more curtailing of production right along the stability they now are attempting to bring to the industry with one sweeping curtailment step.

If the officials do not heed the warnings more closely in the future, these critics predict, whatever stability the present shutdowns bring will be only temporary.

Some of this criticism undoubtedly is justified. Some of it is not, for after all it must be kept in mind that these state officials are constantly in the unenviable position of trying to reconcile many divergent interests. The producers, for example, want to produce all the oil they can, and the state tax authorities want as much oil produced as possible. The crude oil purchasers, on the other hand, do not want to buy more oil than they need.

One of the most persistent warning signs had been the plea from some quarters that the state regulatory bodies hold actual production each month to the actual allowable as set for that period. This plea has come alike from producers and purchasers. A commitee of the Independent Petroleum Assn. of America, for example, meeting in Oklahoma City simultaneously with the emergency session of the Interstate compact commission, approved a lengthy resolution in which was contained this recommendation:

"That the regulatory bodies of the several oil producing states upon fixing the monthly allowable for the respective states, be urged to not thereafter change the same, nor permit the actual production to exceed the same."

The Texas regulatory body fixes what it calls a "basic" allowable. By the time the new wells are fitted into the picture and revisions made in allowables of various fields from time to time, the actual daily allowable for the period almost invariably runs above the basic allowable set at the beginning of the period.

The Oklahoma authorities for the past 15 months have set the allowable at the beginning of each of these months at 428,000 barrels daily. Only twice in those 15 months has actual production for the month been under that figure. There have been months when the actual production ran closer to 450,000 barrels a day. The difference is due to the granting of special allowables from time to time.

Somewhat the same situation has existed in Kansas, although the new commission has been endeavoring to whittle down the special allowables that have been enjoyed by some fields.

The state authorities also have been charged with failure to give sufficient consideration to Illinois production, despite the urge of purchasers in the Mid-Continent that the officials attempt to fit that state's growing production total into the general Mid-Continent picture.

That criticism is justified in part by a study of the allowables. It will be recalled that the Salem-Lake Centralia field, now producing almost 200,000 of the 300,000 barrels a day now being produced in Illinois, was discovered in July, 1938.

Here are the daily allowables for three of the largest producing states in the southwest for August, 1938, and for this August:

State	Aug. 1938	Aug. 1939
Kansas ...	165,500	164,000
Oklahoma	428,000	428,000
Texas ...	1,394,269	1,355,598
Total	1,987,769	1,947,598

This table shows the total allowable for the three states for this month is 40,000 barrels under the allowable for August, 1938. But it will be seen that all but 1500 barrels of this amount is in Texas.

Yet it has been primarily Oklahoma and Kansas oil that Illinois has replaced since it became a flush producing field.

Humble 'Compelled' to Cut Because of Low-Priced Oil

HOUSTON, Tex., Aug. 19. — Humble Oil & Refining Co. was compelled to reduce the posted prices it pays for crude because of competition from under-the-market oil produced chiefly in Illinois and Louisiana, according to a statement by President H. C. Wiess.

The statement was carried in half - page advertisements in Houston newspapers in which the company defended its action, and at the same time expressed the hope that the situation will be corrected with a resultant improvement in the market.

The action of Humble in using advertising space to explain its position to the public, it is believed, was brought about by the fact that the major portion of the blame for the crude price cuts has been laid at its door by the oil industry in the southwest, despite the fact Sinclair Prairie Oil Marketing Co. initiated the price cuts.

It is believed in many quarters that a good portion of blame was steered to the Humble's front door by public utterances of certain individuals who aspire to be the next governor of Texas. The elections will be held next year and there undoubtedly will be a sizeable number of candidates. One observer remarked recently that it appears the aspirants already are scrapping among themselves for the privilege of twisting the Humble's tail, and heaping coals of fire on its parent company, Standard Oil Co. of New Jersey.

And in the general furore the Sinclair Prairie company has been all but forgotten.

"In our opinion," President Wiess' statement said in part, "the flood of oil from Illinois and Louisiana, most of which is being produced wastefully, in violation of conservation principles, is primarily responsible for the market conditions which necessitated our price reductions.

"We think the price for oil brought about by competitive conditions is lower than should be realized. . . ."

"Humble is primarily a producer of oil. Its net production averages 133,000 barrels a day, and the company buys an additional 251,000 barrels of crude daily in Texas and New Mexico.

"Our refineries consume something near the amount of oil which we produce. As a consequence, with respect to our purchases, we are in the same position as a merchant dealing in any commodity. To continue in business we cannot over a long period of time continue to pay higher prices than our competitors. We are compelled to meet competition.

"The crude market has been under pressure for more than a year. The price adjustments last October did not remove fully the disparity between Humble's prices and those of some oil moving in its markets. Since that time the volume of crude moving below our prices has increased steadily, with the result that when the reduction of Sinclair-Prairie and the others came on Aug. 10, affecting approximately 150,000 barrels per day, the conditions were so bad that we were compelled to reduce our prices to meet this competition. . . .

"On Aug. 1 a total of 218,920 barrels of oil moved daily in Texas, Louisiana and Arkansas at prices below those paid by Humble. South Louisiana reportedly produced 81,920 barrels of this oil, north Louisiana and Arkansas 39,350; west central Texas 37,000; Texas Gulf coast 22,600; southwest Texas 16,900; east central Texas 6850, and Texas Panhandle 1500 barrels."

President Wiess said that added to this volume Sinclair and other purchasers reduced prices on 150,000 barrels, until 17.5 per cent of the oil bought in Texas, New Mexico and Louisiana, where the company operates, was moved at prices below those paid by Humble.

"For more than a year," the statement also read, "Illinois crude has disturbed the market. The amount of such oil was estimated at 300,000 barrels on Aug. 1. On Aug. 11, therefore, the total volume of oil moving at prices below those of the Humble was approximately 668,000 barrels."

The company maintains stocks of crude oil slightly in excess of the amount required for working stock, President Wiess stated. "We do not," he said, "speculate in oil. We do not believe in storage of oil above ground. We have no desire to buy oil at any price to accumulate storage."

Texas To Probe Humble

HOUSTON, Tex., Aug. 19.—An investigation of oil companies to determine if any are violating the Texas anti-trust laws has been started by Attorney General Gerald C. Mann with the Humble Oil & Refining Co. (Standard Oil Co. of New Jersey subsidiary) right at the top of the list.

The investigation came to light after Commissioner Jerry Sadler of the Texas railroad commission had asked the attorney general to investigate the alleged illegal relationship existing between Humble and the New Jersey Standard.

Gulf Refiners Reclassify Their Petroleum Products

The Oilgram (Aug. 17) in all its editions, and NATIONAL PETROLEUM NEWS in its issue of Aug. 23, 1939, prints in full the announcement of the new Gulf Coast Refiners Association of Aug. 15th, in regard to its reclassification of the products of its members.

Pursuant to its policy of years where an association well representative of the refiners in a given area adopt specifications and standards that simplify their own practices and that are adopted generally by the trade, Oilgram and NATIONAL PETROLEUM NEWS will report the prices it gathers from Gulf Coast Refiners in conformance with these new standards. If, however, any refiner on the Gulf Coast does not follow the association's standards of specifications Oilgram and NATIONAL PETROLUM NEWS will report such prices in whatever way the refiner reports them, but clearly showing that such prices are on products that do not conform to the association's standards.

Prices on motor fuels of refiners conforming to association practice will be shown under the heading of "GCRA Motor Fuel-Summer Grade" or "Winter Grade." Prices on fuels Nos. 1 to 6 which includes burning oils, will be shown as "GCRA fuel oils No. ——" and of kerosine "GCRA Kerosine —— gravity." The details of all such specifications will not be published each issue with the prices but they can be obtained either from the publisher or from the association.

This method of reporting prices will only be followed as long as it is used by the interested refiners. All non-conforming prices will be separately shown and as reported to us by the reporting refiner.

This change will be effective in Oilgram and NATIONAL PETROLEUM NEWS as soon as it appears to have been put in practice by the Gulf Coast refiners.

Platt's Oilgram and National Petroleum News

Statement of Gulf Coast Refiners

From George Reid,
GULF COAST REFINERS ASSN.
1613 Second Nat'l. Bank Bldg.,
Houston
Release immediately.
PRESS RELEASE—

August 15, 1939

Gulf Coast Refiners Announce Specifications

HOUSTON, Aug. 15.—The Gulf Coast Refiners Association, announces adoption of standard specifications for GCRA motor fuel, kerosine and certain fuel oils. The association is working further on specifications for other products and complete details will be announced later.

To expedite trading, to facilitate quotings on markets and to avoid confusion in interchange and publication of market information the association has standardized on a GCRA standard motor fuel, summer and winter grade, a 400 end point product, applicable through the octane rating grades of 60, 65, 67, 68, 70 and 72-74, CFR method and 72-74 octane L-3 method. The designation "CFR method" following octane rating indicates unleaded motor fuel. The designation "L-3 method" with regard to 72-74 octane rating indicates a leaded motor fuel. This action does not infer that the association member companies will not continue to produce other motor fuel grades to meet market demands where necessary, but that the group has specified one grade or type of motor fuel as its standard GCRA Motor Fuel. Detailed specifications of the standard fuel, both summer and winter types are as follows:

GCRA Motor Fuel
Summer Grade

Distilling:—
Min. 12% @ 158° F.
Max. 18% @ 158° F.
Min. 30% @ 212° F.
Min. 50% @ 257° F.
Min. 89% @ 356° F.
End Point 400° F. Max.
Recovery—96½% Min.
Doctor—Okay
Corrosion—Okay (3 hrs. @ 122° F.)
Gum—Glass dish—5 mg. Max.
Content Tetraethyl Lead—1.5 c.c. Max.
Reid Vapor Pressure—9 lbs. Max.

GCRA Motor Fuel
Winter Grade

Distilling:—
Min. 14% @ 158° F.
Max. 24% @ 158° F.
Min. 30% @ 212° F.
Min. 50% @ 257° F.
Min. 89% @ 356° F.
End Point—400° F. Max.
Recovery—96% Min.
Doctor—Okay
Corrosion—Okay (3 hrs. @ 122° F.)
Gum—Glass dish—5 mg. Max.
Content Tetraethyl lead—1.5 c.c.—Max.
Reid Vapor Pressure—11 lbs. Max.

All methods of testing or determining specifications are standard A.S.T.M. methods.

All future quotations on products offered by the membership of the Gulf Coast refiners association will be based on this GCRA Motor Fuel standard. Products moving from member plants which are not built on these specifications will be indicated in quotations and to the trade as "other" or "special," to differentiate such products from the standard GCRA Motor Fuel.

With regard to GCRA fuels 1 to 6 which includes the burning oil and other fuel oils, the association has adopted as standard the now widely used specifications for fuel oils, A.S.T.M. Designation D-396-38 T- as published in the 1938 edition of A.S.T.M. Standards on Petroleum Products and Lubricants. These fuels will carry the identification initials GCRA No. 1, No. 2, and so on.

The association has adopted specifications for GCRA Kerosine, a 41/43 gravity product as standard. Flash is 110 or legal, or above. End Point is 540° F. Max. Negative to Doctor and Corrosion; Color, 30 and Sulfur 0.10%. Burning Test, 24 hrs. A.S.T.M. D-187-36, lamp method. Other grades of Kerosine produced for marketing when trade conditions require it, will be quoted as "other" or "special" grades, or prime white or kerosine distillate in accord with usual trade practices.

The association will continue its work relative to other products and their specifications and will announce results of this endeavor in the near future.

The Gulf Coast Refiners Association, organized June 22, 1939, consists of non-integrated refining companies operating in the Gulf Coast region from New Orleans, Houston, to Corpus Christi. The ten concerns organizing the association and the association director with each member company are as follows:—Kent W. Bartlett, Amsco Ref. Co., Corpus Christi; D. B. Williams, Chalmette Pet. Co., New Orleans; G. L. Rowsey, Coastal and Taylor Refg. Cos.; Taylor; Louis Rothermel, Maritime Oil Co., Houston; Saul Singer, Pontiac Refg. Corp., Corpus Christi; D. W. Hovey, Republic Oil Refg. Co., Houston; Cornelius Kroll, Southport Pet. Houston; S. S. Seltzer, Jr., Southwestern O. & R. Co., Corpus Christi, T. E. McArdle, Terminal Oil Co., Corpus Christi.

Officers of the association are:—D. W. Hovey, president, Cornelius Kroll, vice president; G. L. Rowsey, vice president; L. Rothermel, treasurer; and George Reid, executive secretary.

Additional copies of the specifications are available for those interested at association headquarters, 1613 Second National Bank Bldg., or from individual members.

NPA Program Lists Varied Oil Topics

N. P. N. News Bureau

WASHINGTON, Aug. 19.—National Petroleum Ass'n. has a varied program for its 37th annual meeting Sept. 13, 14 and 15 at Atlantic City, ranging from talks on social security legislation, marketing problems, economics and truck transportation to catalytic cracking, anti-trust policies and the O'Mahoney monopoly committee.

PROGRAM

Wednesday Morning, September 13
9:00 A. M. Daylight Saving Time.
Department of Taxation—Breakfast Meeting, (Rose Room).
"Amendments to Social Security Act—1939", George W. Guth, Socony-Vacuum Oil Co.
Meeting of Executive Committee of the Department of Fire and Accident Prevention.

Wednesday Afternoon, September 13
2:00 P. M. Daylight Saving Time.
President's Address.
Charles L. Suhr, President, National Petroleum Association.
Appointment of Committees.
Current Economics in the Petroleum Industry, Joseph E. Pogue, Vice President Chase National Bank.
Enforcement of Anti-Trust Laws and the Proposed Amendments, Thurman W. Arnold, Assistant Attorney General.
Discussion, led by Fayette B. Dow, will follow Mr. Arnold's address.
Report of Nominating Committee.
Election of Trustees.

Wednesday Evening, September 13
8:00 P. M. Daylight Saving Time.
Board of Trustees Meeting.

Thursday Morning, September 14
9:00 A. M. Daylight Saving Time.
Department of Manufacture—Breakfast Meeting, (Rose Room).
Review of Catalytic Cracking, Arch L. Foster, Lubri-Zol Corp.
Discussion by Arthur E. Pew, Jr., and others.
Traffic Department—
Recent Developments in the Application of Transportation Costs to Rate-making in Petroleum Products, Arthur F. White, Assistant Director Bureau of Statistic, Interstate Commerce Commission.

Thursday Afternoon, September 14
2:00 P. M. Daylight Saving Time.
Brief Reports of Association Activities,
M. C. Mallon
Harry S. Elkins
Joseph E. Keller
Samuel J. Elder
Petroleum Marketing, Paul Ryan, President National Refining Co.
Progress of the Temporary National Economic Committee, Senator Joseph C. O'Mahoney.

Thursday Evening, September 14
6:30 P. M. Daylight Saving Time.
Fellowship Banquet—Hotel Traymore.
Lowell Thomas
Lucille Manners - - - Kay Thompson
Michael MacDougall - - - The Barbershop Quartette

Friday Morning, September 15
11:00 A. M. Daylight Saving Time.
Seaview Breakfast.
Members and their friends will be the guests of The Pure Oil Company.

'Gas' Stocks Cut Deeply

N. P. N. News Bureau

NEW YORK, Aug. 22. — Despite the fact that refinery crude runs to stills jumped 115,000 barrels on daily average, stocks of finished and unfinished gasoline were slashed 1,113,000 barrels in the week ended Aug. 19, according to the American Petroleum Institute's report on refinery operations compiled today.

The Institute's report shows that all districts in the country shared in the reduction, with the exception of Inland Texas and California, where small gains were reported.

Texas Gulf and East Coast led all districts in paring refinery gasoline stocks. The former reduced inventory 442,000 barrels, while the latter lopped off 298,000 barrels.

Texas Gulf and East Coast also led the country in the increase in crude throughput, increasing runs 50,000 and 29,000 barrels on daily average respectively. California runs were up 21,000 barrels.

Production of gasoline jumped 186,000 barrels during the week. Stocks of gas oil, distillate and heavy fuels rose a combined total of 1,475,000 barrels, the Institute report shows.

LYONS, Kans., Aug., 21. — Fire last week at the H. and T. refinery at Chase, Kans. destroyed a pump house and an agitator containing 2000 gallons of distillate. Loss was estimated at $5000.

Latest Oil Industry Statistics

Trends of Basic Figures

	Aug. 19, 1939	Aug. 12, 1939	Aug. 21, 1938
Crude Production (Bbls. daily)	2,480,550	3,550,100	3,392,700
Crude Imports (Bbls. daily)	75,860	69,570	56,290
Crude Runs to Stills (Bbls. daily)	3,575,000	3,460,000	3,269,000
Gasoline Stocks (Bbls. total)	74,738,000	78,851,000	73,196,000
Gas Oil & Distillate Stocks (Bbls. total)	37,013,000	36,239,000	.....
Residual Fuel Oil Stocks (Bbls. total)	115,069,000	114,309,000	.....

Crude Oil Production for the U. S.

(American Petroleum Institute figures)

	Week Ended Aug. 19 Barrels	Aug. 12 Barrels	Aug. 5 Barrels
Oklahoma	433,300	440,700	412,900
Kansas	172,000	170,850	176,000
Texas	376,100	1,361,700	1,743,500
Louisiana	194,800	250,450	275,000
Arkansas	60,150	64,000	63,400
Illinois	293,400	296,000	279,500
Eastern (Ill. excluded)	99,000	95,650	97,500
Michigan	68,600	68,900	67,850
Wyoming	70,950	61,950	61,700
Montana	16,150	16,450	16,550
Colorado	4,150	3,800	4,000
New Mexico	65,750	104,150	109,100
California	626,200	615,500	602,400
Total U. S.	2,480,550	3,550,100	3,909,400
Crude Imports	75,860	69,750	110,000
Total New Supply	2,556,410	3,619,670	4,019,400

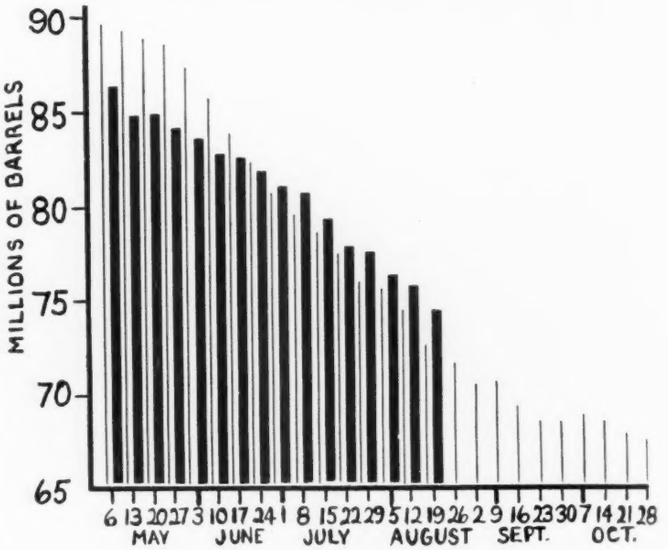
Stocks of Crude Petroleum July 29 and Aug. 5 and 12, 1939

(Thousands of Barrels)

Grade or origin	July 29	Aug. 5	Aug. 12	Change from Aug. 5
Pennsylvania Grade	5,682	5,654	5,684	+ 30
Other Appalachian	1,202	1,234	1,176	— 58
Lima-Michigan	1,917	2,042	2,141	+ 99
Illinois-Indiana	14,469	14,649	14,873	+224
Arkansas	3,530	3,372	3,354	— 18
Kansas	6,138	6,204	6,391	+187
Louisiana:	13,455	14,000	13,744	—256
Northern	5,647	5,625	5,503	—122
Gulf Coast	7,808	8,375	8,241	—134
New Mexico	5,576	5,511	5,519	+ 8
Oklahoma	70,049	70,424	70,355	— 69
Texas:	85,964	85,614	84,007	—1,607
East Texas	19,210	19,858	19,249	—609
West Texas	16,507	16,587	16,509	— 78
Gulf Coast	21,859	20,890	20,356	—534
Other Texas	28,388	28,279	27,893	—386
Rocky Mountain	19,212	19,074	18,962	—112
California	38,812	38,485	38,513	+ 28
Foreign	2,507	2,719	2,817	+ 98
Total U. S. refinable	268,513	268,982	267,536	—1,466
Heavy in California	14,316	14,365	14,331	— 34

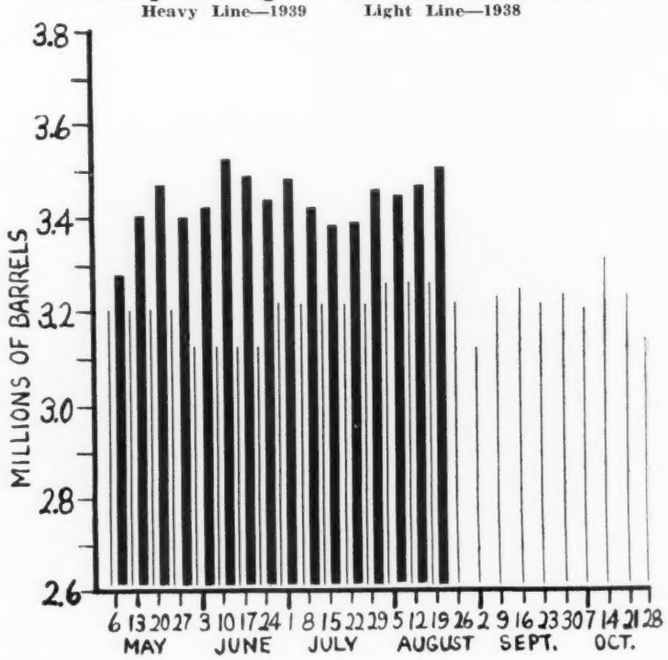
Total U. S. Motor Fuel Stocks

Heavy Line—1939 Light Line—1938



Daily Average Crude Runs to Stills

Heavy Line—1939 Light Line—1938



A. P. I. Weekly Refinery Report

(Figures in Thousands of Barrels of 42 Gallons Each)

Districts	Daily Average Crude to Stills Week Ended Aug. 19	Aug. 12	Per Cent of Reporting Capacity Operated Week Ended Aug. 19	Aug. 12	(a) Gasoline Production Week Ended Aug. 19	Aug. 12	Stocks Total Finished & Unfinished Motor Fuel (b) Week Ended Aug. 19	Aug. 12	Stocks of Gas Oil & Distillates At Refineries Week Ended Aug. 19	Aug. 12	At Terms. Trans. Pipelines Week Ended Aug. 19	Aug. 12	Stocks of Residual Fuel Oil At Refineries Week Ended Aug. 19	Aug. 12	At Terms. Trans. Pipelines Week Ended Aug. 19	Aug. 12
East Coast	588	559	95.6	90.9	1,597	1,595	20,589	20,887	6,160	6,061	6,262	6,001	5,742	5,295	3,907	4,115
Appalachian	112	118	87.5	92.2	390	413	3,280	3,332	225	242	54	59	389	398	....	....
Ind., Ill., Ky.	479	461	93.2	89.7	1,985	1,999	11,719	11,896	3,715	3,645	793	752	2,854	2,863	51	36
Okla., Kans., Mo.	273	261	79.8	76.3	(c)991	(c)978	6,391	6,394	1,622	1,592	49	43	2,847	2,823	....	....
Inland Texas	128	124	80.5	78.0	512	478	1,629	1,613	393	375	....	....	1,903	1,890	....	....
Texas Gulf	908	858	95.6	95.9	2,790	2,632	8,327	8,769	5,140	4,881	347	348	7,300	7,158	268	272
La., Gulf	138	147	86.3	91.9	335	290	1,946	2,042	1,122	1,095	24	24	1,815	1,653	293	282
No. La., Ark.	45	48	81.8	87.3	113	135	459	514	285	286	9	11	647	648	....	....
Rocky Mt.	58	60	90.6	93.8	224	220	1,159	1,199	115	110	....	....	569	568	....	....
California	500	479	67.1	64.3	1,346	1,379	14,194	14,143	8,093	8,115	1,810	1,812	60,863	60,666	23,216	23,262
Total Reporting	3,229	3,115	86.5	84.7	10,283	10,119	69,693	70,789	26,870	26,402	9,348	9,057	84,929	83,962	27,735	27,967
U. S. Total (d)	3,575	3,460			11,685	11,499	74,738	75,851	(d)27,665	(d)27,182	9,348	9,057	(d)87,334	(d)86,342	27,735	27,967
U. S. Total 8-19-38 (d)	3,269				10,988		73,196		27,981				117,620			

(a) Includes straight-run, cracked and natural blended.
(b) Includes stocks at refineries, in bulk-terminals, pipe lines and in transit.
(c) 12% of reporting capacity in this district did not report gasoline production.
(d) Estimated. U. S. Bureau of Mines basis.
(e) For comparability with last year these figures must be increased by stocks "At Terminals, etc." in California district.

How the Industry

Chases Its Own Tail As Its Gasoline Prices Fall

An analysis of the price history and policy of the oil industry—individual oil companies sell "at or under" the "price leader"—ordinary price accounting methods not used in determining industry's sales prices—industry's lack of proper price policy continually forces all prices downward

By Warren C. Platt, Editor

What is the PRICE POLICY of the oil industry?

Just how is PRICE arrived at by the many thousands of units selling from refineries and marketing establishments?

Does any one try to determine, by well known and sound accounting computation, his own SALES PRICE?

Does any one ever try to put his price above his neighbor's and competitor's price?

What is the PRICE HISTORY of the oil industry that has produced this price policy, whatever it is?

To what extent does the PRICE HISTORY of the industry and the PRICE POLICY account for today's undoubtedly unprofitable prices in the main?

In seeking an answer to the above questions the discussion would well seem to warrant the following conclusions,—

1—The PRICE HISTORY of the industry seems to indicate that the industry early found the "normal" prices of Mr. Rockefeller's organization highly profitable and was content to sell at or below them and almost always at good profits.

2—When Mr. Rockefeller's "monopolistic" regime was ended by the courts, other factors intervened, such as the tremendously growing automobile business, which was providentially accompanied by the discovery of large fields of low cost crude oil, so that no matter how much the oil industry sold "at or below" the "market leaders'" prices, these other factors so steadily and quickly reduced costs, that prices were, for the most part generally extremely profitable.

3—Since individual sales units in the industry, both large and small, never had to figure out by accepted accounting methods their costs and the profit they should get, add that all up and call that their sales price, the PRICE POLICY of the industry, therefore, has pretty uniformly been one of selling AT or BELOW the OTHER FELLOW'S PRICE.

All of which leads to the questions,—

Has not the oil industry lost sight entirely of the fact—at least as accepted in practically all other lines of business—that price is strictly an individual affair and, at the moment of sale, it is solely within the province of just two people, the seller and the buyer? At that particular moment, price is not a "market", it is not a "price structure", it is not an "index" for economists to juggle with. At that critical moment price is just the number of dollars and cents at which the seller is willing to part with his goods and for which the buyer will part with his money.

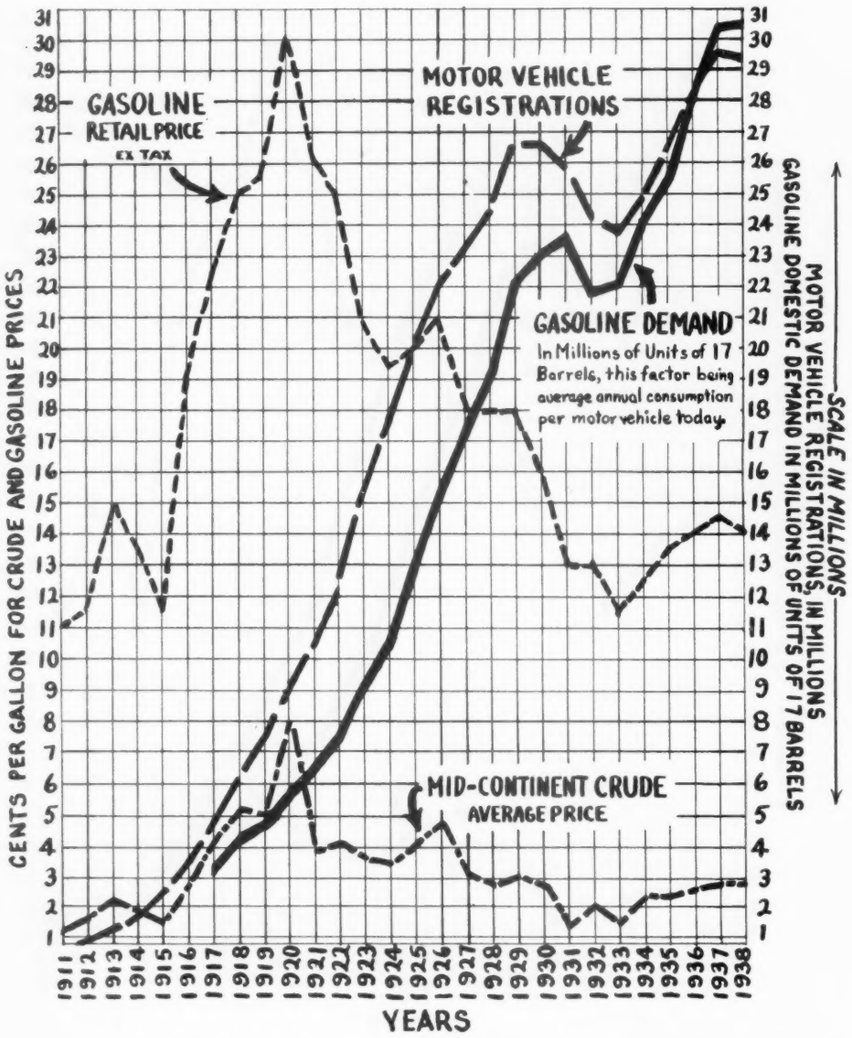
Has not the oil industry pretty much failed to do what most other business men do and that is, before the moment of sale, each sit down and carefully figure a profitable sales price from his own costs, investment, condition of the market, prices of competitors and all other factors, including THE NEED OF EACH FOR A CERTAIN PERCENT OF PROFIT,—in short calmly and as scientifically as possible determine a profitable price in advance and plan ways to get that if at all possible?

A search of one's memory and back files fails to disclose any studied effort on the part of the oil industry as a whole or any important part of it, to investigate and set forth the technique and art of pricing one's goods for sale.

The industry collectively has done a marvelous job through the American Petroleum Institute and other organizations in exchanging technical information for the operation of producing, refining, transporting and marketing departments. The ablest technical men in the world in their lines have spent literally several years together in the last 20 years, exchanging their best ideas and data to improve all the arts of the oil industry except that one of how to arrive at a profitable price.

In addition to thus studying and investigating the normal technical activities in the industry, the industry has also done a big job on standardizing field equipment in order to cut costs. It also has exchanged credit information to great advantage. Many years ago the American Petroleum In-

Gasoline's Market Sweeps Upward


GASOLINE RETAIL PRICE EX TAX
MOTOR VEHICLE REGISTRATIONS
GASOLINE DEMAND
In Millions of Units of 17 Barrels, this factor being average annual consumption per motor vehicle today
MID-CONTINENT CRUDE AVERAGE PRICE
CENTS PER GALLON FOR CRUDE AND GASOLINE PRICES
MOTOR VEHICLE REGISTRATIONS, IN MILLIONS GASOLINE DOMESTIC DEMAND IN MILLIONS OF UNITS OF 17 BARRELS
SCALE IN MILLIONS
YEARS
1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938

NOTE: Gasoline retail prices are prices at Chicago only, from 1911 through 1931; at approximately 35 cities, from 1914 through 1918; at 50 representative cities, from 1919 through 1938. Prices are exclusive of state and federal taxes, which ranged from a U. S. average of 0.06c (6/100c) per gal., beginning in 1919, to 5.5c per gal. through 1938.

The above chart shows the almost perpendicular rise of the output of motor cars and the consequent demand for gasoline for the past 28 years. Seldom in industrial history has there been such a tremendous natural growth in a market. The oil industry did not have to spend any effort to create this market, but only to supply it. A price policy was never thought of

stitute through a committee of oil industry accountants set up recommendations for a standard balance sheet.

The industry and many individuals within it, has also finally become conscious of the "law of supply and demand", and come to realize that, when there is too much of anything, prices must go down. As a result of this realization the industry has developed an excellent and immediate gathering of fundamental statistics so that the condition of the oil industry from coast to coast, is known with great accuracy each week.

But nowhere in the industry's association activities is there any to teach the oil man the fact that his sales prices are his only and no one else's, and that he should have his own means of arriving at his price, which should include a profit, whether he finally gets the profit or not.

A good many years ago the Federal Trade Commission did quite a lot of work with industry generally, and if recollection is correct, there was talk of its doing some of it with the oil industry, to teach all business men the need of each figuring his own sales prices on properly set up costs, interest, depreciation and profit. But nothing ever came of it for oil.

For years the oil industry's history has been one of following first Mr. Rockefeller's prices, then following "market leaders" and so-called "markets" whether they existed or not, until today what oil man ever undertakes to arrive at his own price by independent computation and modern cost accounting methods?

But let us quickly review the industry's PRICE HISTORY.

When Mr. Rockefeller, Senior, entered the oil business, he found very demoralized price conditions. He early decided that these conditions could be "stabilized", as we call it today, by getting refiners to act as a group. The easiest way he found to do that, was to get them into one company. He did this by offering stock and sometimes cash, but generally stock.

He found that he could not get all in, but he also found that if he could get enough in to control directly 85% of the kerosine of the country he could set and maintain profitable prices. While he and his associates were at it, Mr. Rockefeller did a few other things than just buy out competitors, but regardless of all that, the fact remains that he was able to and did set exceedingly profitable prices through his control of 85% of the business.

His interest, it was testified, was not in any glory from being a "monopolist" but in getting profitable prices and to get them he had to control 85% of the business, which the courts finally said constituted "monopolizing" the industry.

But whatever the sins of Mr. Rockefeller, Senior, and his associates, he knew how to figure exceedingly profitable prices. No one ever denied that. His prices were so profitable that competitors found that if they could not get them they could still make much money by selling below them. This would arouse Mr. Rockefeller's ire. The so-called "rough work" that brought about the famous dissolution suit resulted from his contemplation of prices that were not profitable enough to him.

Mr. Rockefeller's prices were so profitable that the very fact that competitors could sell below him and still make good profits, was also offered in evidence to prove that Mr. Rockefeller had a "monopoly." And it was offered also to prove the reverse, that the competitors were "independent."

The result was that, for some 30 years, Mr. Rockefeller set the prices for all those in the oil industry. He did the cost figuring. No one else had to bother about it. As a consequence several generations of men grew up in the oil business who ignored cost accounting, and centered all their time on the technique of producing and refining. For years now the cry has been that the executives of so many companies were all "production minded" or "refinery minded" and no one was doing anything about price.

The dissolution decree in 1912 ended Mr. Rockefeller's reign as price arbiter of the oil industry. But his influence continued for many years thereafter which, coupled with other new factors that made for good profits, evidently caused the average oil man to overlook the fact that their current prices were not established by sound business and accounting computation on

Refining Technology

INCLUDING INTERNATIONAL PETROLEUM TECHNOLOGY

Dear Reader:

This week we are presenting an exclusive article which we know will be of unusual interest and value to the oil refining industry. The article is the first description of the operation of a new type Houdry unit and of the equipment used in this process.

The unit described is the No. 1 Houdry of Magnolia Petroleum Co. at Beaumont, Texas, which was the first of the new type to be completed. It represents the results of years of development and the expenditure of many millions of dollars in painstaking research.

This particular unit was put on stream last February at a cost of $2,980,000 and represents only about a tenth of the money being spent this year by Socony Vacuum Oil Co., Inc., and the Sun Oil Co. in building similar plants to practice this catalytic cracking process.

★ ★ ★

It has been said within the past year that development of the Houdry process is one of the most important events in oil refining technique since thermal cracking was made commercially feasible by Dr. William M. Burton more than 20 years ago. So rapid has been the rate of recent developments that the refining industry has been in a state of flux for at least two years as results of research into catalytic methods of manufacture have begun to bear fruit.

Today a number of chemical methods of refining are in the commercial stage. They include alkylation, isomerization, aromatization, hydrogenation and polymerization as well as catalytic cracking. Results are greater yields of motor fuel from fuel gases and from crude oil as well as vast improvement in quality of product.

Tomorrow the aviator will climb higher and fly faster because of today's research developments. Tomorrow the motorist will be able to use a higher compression engine. He will drive farther on less fuel and with greater satisfaction because refiners have spent millions for research.

★ ★ ★

NATIONAL PETROLEUM NEWS published its first Houdry process article nearly six years ago in the issue of Dec. 27, 1933. At that time we printed a photograph of the pilot plant at Paulsboro, N. J., and gave some of the results obtained in the experimental plant. High yields of 78 octane gasoline then were being obtained from distillate stocks. The N.P.N. article listed early patents showing the direction being taken by Eugene Houdry and Dr. W. F. Faragher in their research.

More than a year ago we asked officials of the Houdry Process Corp. for permission to visit a plant and write an article giving construction details and operating results. That request did not bear final fruit, however, until this week.

Magnolia completed its first run of 138 days on its No. 1 Houdry with 95.5% stream time efficiency on June 26. The unit was shut down for a 2-day inspection of equipment. It was only then that we were invited to inspect the plant and write the article we applied for more than a year ago.

Staff Writer M. G. Van Voorhis spent a full week at Beaumont studying operating of the unit and photographing it from all angles. P. L. Smith, head of Magnolia's technical staff, assigned C. P. Baker to guide Van Voorhis about the plant, answer his questions and get engineering data from the files.

Apparently Van Voorhis is one of the first outsiders to inspect the plant. Manufacturers of equipment have not been permitted to visit the unit. So carefully have secrets of the process been guarded that even prospective licensees have not been invited to an operating plant to see what was going on. Instead the prospects were given a simplified flow chart far from being as elaborate as the one published in this issue, and a brief statement of utilities and results.

★ ★ ★

After the N.P.N. article was written it had to pass a board of review for accuracy of statement. First Van Voorhis read his article to a group of 10 Magnolia technologists and operating officials headed by J. W. Newton. Once past that board it went to New York to be read by Wilber F. Burt, head of manufacturing for Socony Vacuum Oil Co., Inc., and finally by officials of Houdry Process Corp.

★ ★ ★

To an outsider some of the most significant features of the Houdry Process in its present stage of development are:

1. Ability to design a plant and select a catalyst to suit the individual requirements of a refiner, whether it be mainly the production of high yields of high octane gasoline or for production of high yields of No. 2 fuel oil and lesser quantities of high octane gasoline as in the case of Magnolia's No. 1 Houdry unit.

2. Ability to produce high octane gasoline from refractory crudes as well as from crudes which process well in thermal cracking plants.

3. Ability of operators to recirculate charge vapors and bypass catalyst cases in case of minor disturbance without shutting down the process and thus losing operating temperatures and cutting production deeply.

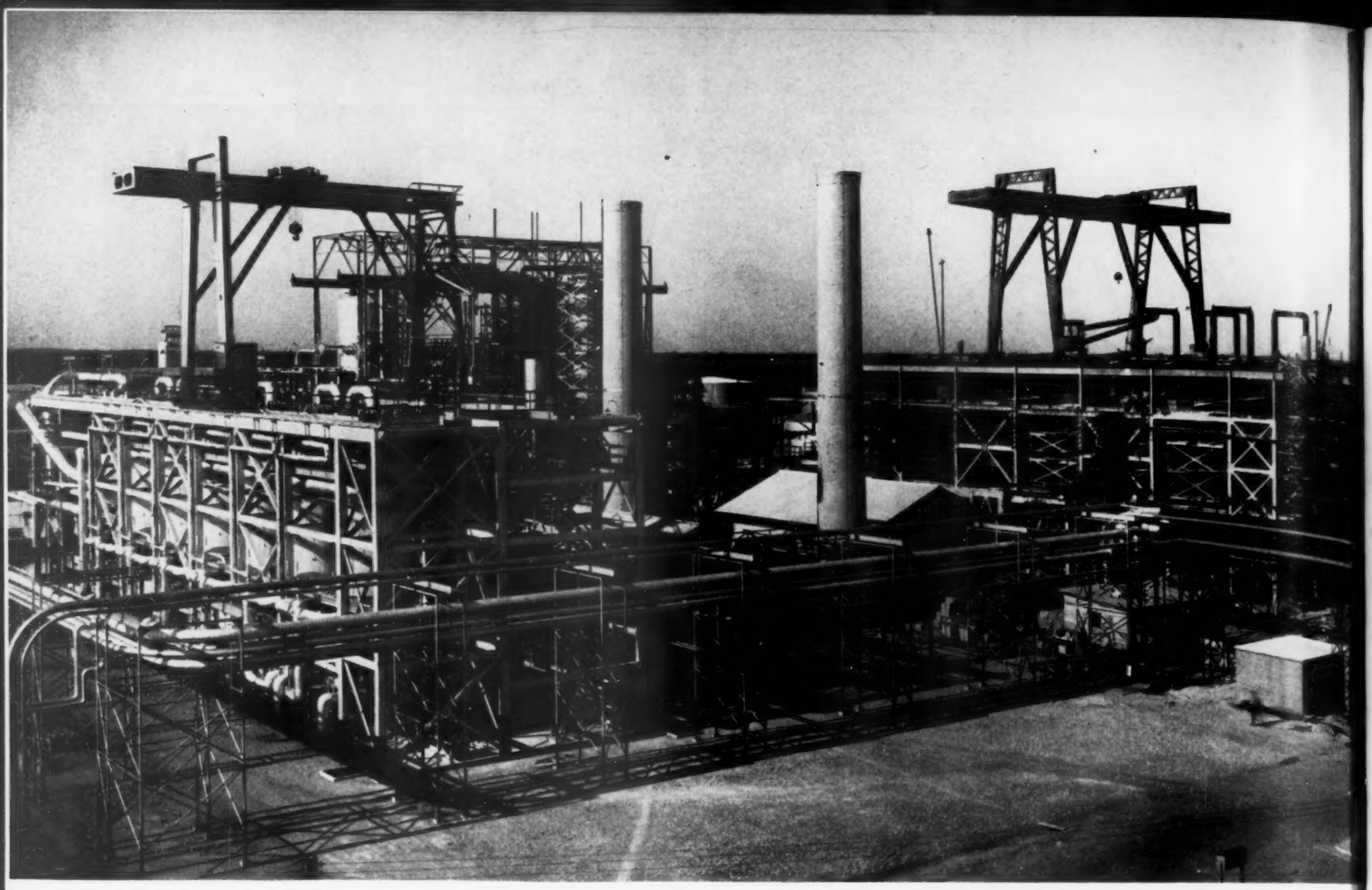
4. Ease of operation despite the complicated and intermittent type of operating cycle.

5. Development of molten eutectic salts as a heat exchange and temperature control medium.

Very truly,

J. C. Chatfield

Managing Editor,
Refining Technology Edition.



Magnolia's No. 1 and No. 2 Houdry units are side by side

729.9

The Houdry Process

Magnolia Petroleum Co. Completes 138-Day Run Of New Type Houdry Catalytic Cracking Unit

By M. G. Van Voorhis
N. P. N. Staff Writer

CATALYTIC cracking on a manufacturing scale is one of the newest and certainly involves the greatest change in refining methods since the thermal cracking process was first introduced as a means of deriving more gasoline from any given crude oil. Its advent has been surrounded by intense interest and speculation as to its effect upon the future of thermal cracking and whether its introduction will be a turning point in the industry's refining development.

While the following description of one 15,000-barrel Houdry unit cannot answer this question directly, it can be said that the present successful operation of Magnolia's No. 1 catalytic cracking unit has been as full of excitement, interest, and enthusiasm as a new electric train to a small boy. And this applies from the top of the organization down to the 32 men who operate the unit during the four daily shifts. In size and operation, however, it suggests the handling of a large ocean vessel. That it is the simplest unit to operate in the whole 100,000-barrel Magnolia refinery is now a bygone conclusion.

The Magnolia Petroleum Co., Beaumont, Texas, completed what was until recently the largest Houdry unit in the world early this year. It is the first unit in which a complete molten salt system has been substituted for water as a temperature control medium for the catalyst cases. No. 2 unit, of the same cracking capacity as No. 1, and combined with a 25,000-barrel per day crude unit,

ABSTRACT

Magnolia Petroleum Co. recently completed the first commercial run of its 15,000-barrel Houdry catalytic cracking unit with 138 days of continuous operation. This unit, which costs $2,980,000, was designed to produce high yields of No. 2 fuel oil and moderate yields of high-octane gasoline on a once-through basis. The gasoline, as a rule, is blended into premium motor fuel but at times is used in the production of aviation fuel. Tar production is held to a minimum which can be blended into other commercial fuels.

This article discusses the design and operation of this particular unit. Other units now operating are designed for a higher gasoline and lower fuel oil yield. It is reported that these units are obtaining yields of approximately 44 per cent cracked gasoline from 56% East Texas crude bottoms thus giving an overall yield of about 63% gasoline from that type crude which has a yield of about 38% straight run gasoline.

Molten salts are used for controlling catalyst temperatures giving better control than water and improving heat recovery. The unit is operated by eight men per shift who have found operation easy when compared with other large cracking units due to a specially developed cycle timer and other automatic control devices which keep the various phases operating smoothly.

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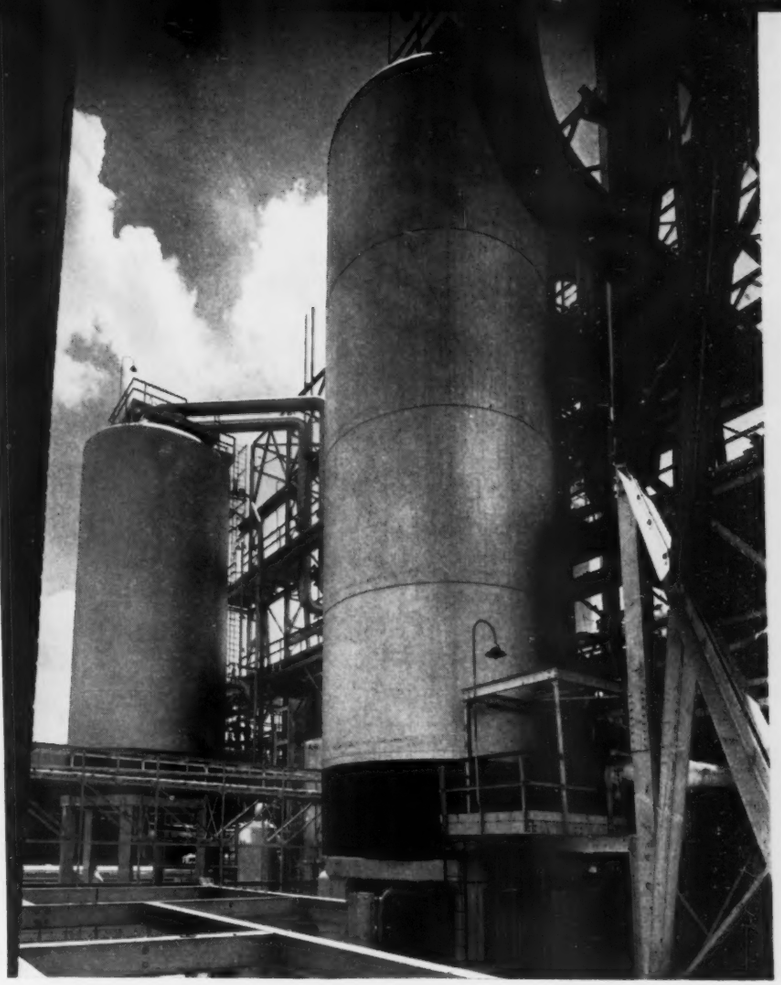

The main fractionator towers for both No. 1 (foreground) and No. 2 Houdry units looking past a front corner of the control house

will be on stream before the summer is over. The two units are adjoining and share the same control room.

The Houdry process has been thought of mainly as a process for producing high yields of high octane gasoline, i.e., 40 per cent and up of charge to the catalyst on a single pass. The Magnolia unit was built with gasoline production only a secondary consideration. No. 2 fuel oil is the principal product the company wanted this unit to produce since it was being produced in insufficient quantities to meet growing demands and thermal cracking units were producing excessive quantities of heavy fuel oils.

It became necessary to replace old equipment used in cracking the refractory Mirando crude and the possibilities of catalytically cracking this crude in a single pass to produce 32.6 per cent of No. 2 fuel, as shown in the accompanying comparative table, was attractive. The 33.3 per cent average yield of 82 octane gasoline based on crude or 38.91 per cent based on charge to catalyst by no means endangered the economic operation of the unit and there is every indication that the unit will pay out liberally on the investment.

Although the thermal cracking operation produced 44.4 per cent gasoline, as shown in Table 1, it had a slightly lower octane number and the remaining product was 46.3 per cent tar, a low value product. The thermal cracking process also is a high temperature, high pressure mixed phase Cross operation requiring a

Table 1
Thermal Vs. Catalytic Cracking Yields on Mirando Crude

	Multi-Pass Thermal Cracking	Single Pass Catalytic Cracking
Stable Gasoline	44.4*	33.3†
No. 2 Fuel	....	32.6
Heavy Gas Oil	....	17.4
Tar	46.3	12.7
Gas and Loss	9.3	4.0

* Finished gasoline yield after acid treating and redistilling.
† Gasoline requires sweetening only.

Contents...

Magnolia's No. 1 Houdry unit, designed for maximum furnace oil production, yields 32.6 per cent No. 2 fuel oil and 33.3 per cent high octane gasoline in single pass operation from highly refractory crude. Low yields of tar and gases are produced R-346

Experiments in the Petroleum Technical Laboratory of the Lwow Polytechnical School show that light olefins can be polymerized with aluminum chloride as a catalyst to produce lubricating oils. Using pure and possibly branched olefins a product is obtained which has a high viscosity, high V.I. and high resistance to oxidation R-370

Two identical and complete refineries producing gasoline from low grade crude demonstrate great flexibility of operation of vapor recovery and stabilization plant by meeting widely varying demands under critical conditions. Selection of equipment was based primarily upon economy of operation and minimum consumption of oil in the supply of utilities for processing. Multifold operation in relatively simple equipment is a design feature R-372

New Patents R-374

Advertisers' Index R-375 and 47

Activities of Equipment Manufacturers R-376

Increase GASOLINE YIELD BY EXTRACTING THE SALTS

Very often the degree, or depth, of cracking crude petroleum is limited by the temperature at which serious coking and plugging of heater tubes and other refinery equipment occur. As deeper cracking frequently offers certain distinct advantages, restriction to lower temperatures places definite penalties on the refiner.

Petreco Electromatic De-Salting has enabled many refiners to crack their oil at higher temperatures without coking, plugging or other mechanical difficulties. As a result they have obtained a better yield of high quality gasoline.

Petreco engineers are available at all times to investigate and discuss such problems with refinery operators, without cost or obligation. Inquiries are invited.

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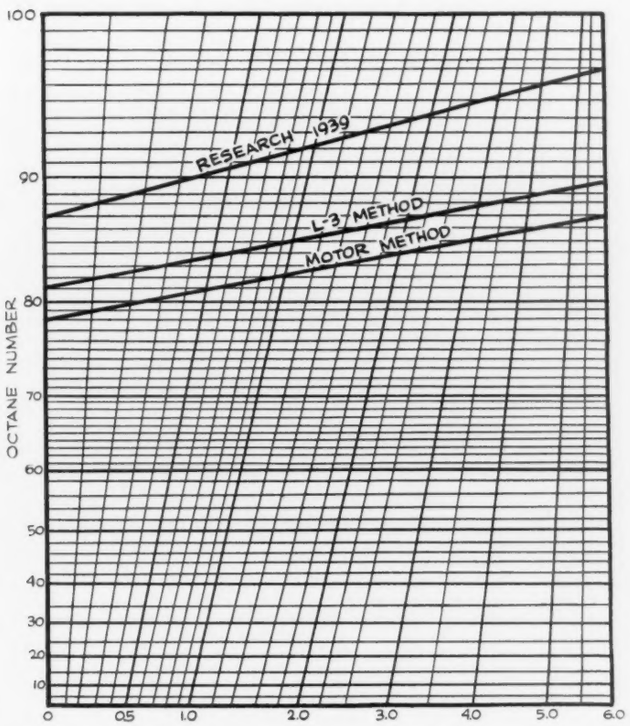
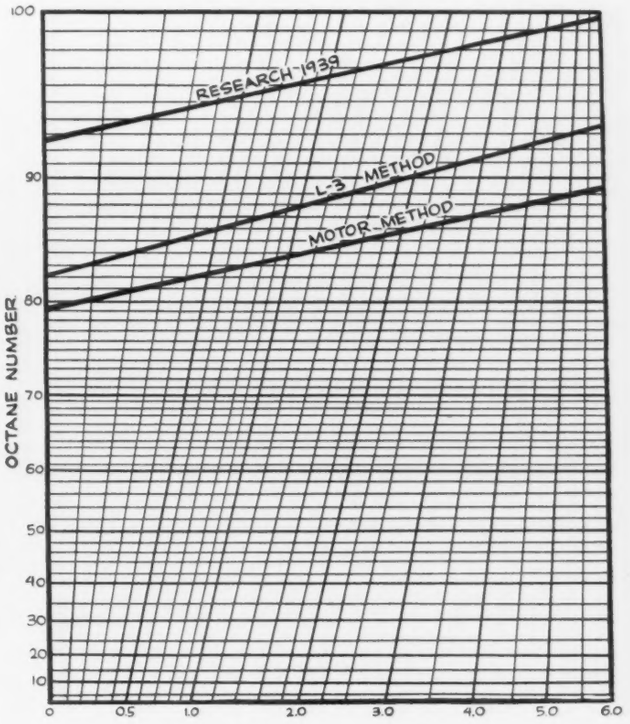


Tetraethyl Lead—cc. per Gallon
Houdry Heavy Naphtha—Mirando



Tetraethyl Lead—cc. per Gallon
Stabilized Houdry Gasoline—Mirando

Graphical demonstration of the large spread between octane numbers of Houdry gasoline by three methods. Thermal cracked gasoline has a much narrower spread. The wide spread means less addition of lead for a given octane number or that less Houdry gasoline is required in blending than thermal cracked gasoline. Other properties are given in the table at the right

	Houdry Heavy Naphtha	Houdry Gasoline
Gravity	33.0	57.3
Corrosion	O.K.	O.K.
R.V.P. at 100° F., Lbs.	0.0	9.7
I.B.P., °F.	316	97
10%	363	134
20%	370	159
30%	374	186
40%	378	210
50%	382	233
60%	386	254
70%	390	272
80%	396	294
90%	402	316
E.P., °F.	422	354
Recovery, %	98	98

• • •

recycle ratio of six to one while the Houdry is a once-through vapor phase operation.

While it is possible to produce a greater gasoline yield from Mirando crude by the Houdry process, a deliberate effort was made to reduce gasoline production by running the charge through the catalyst cases at an unusually high rate so as to effect only a light cracking reaction. A further consideration in designing for high yield of No. 2 fuel oil is that if more light heating oil is produced than can be disposed of, this product is still an ideal charge for thermal cracking stills and gives the same yields as virgin gas oils of the same characteristics.

Tables 2 to 5 give the yields and properties of products and pertinent time and utility data during the period from May 13 to 21. During this week an aviation gasoline distillate was produced whereas the product generally is blended to a premium motor fuel, but the figures are typical of the product yield. The corrected gasoline yields shown in Table 5 were prepared to include butanes necessary to bring the motor gasoline up to the vapor pressure of 11 pounds. The excess light ends (isobutane) are potential alkylation or polymerization charge. Since the shutdown in June the unit has yielded over 44 per cent No. 2 fuel oil due to changes made in the distillation to improve the separation between No. 2 fuel and heavy gas oil.

Blending values of Houdry gasoline from Mirando crude are shown on Table 6. It is noted that Houdry gasoline has a calculated blending value of 91.5 by the L-3 method in concentrations of 20 per cent mixed with 80 per cent East Texas gasoline of 65.1 octane number. One of the significant properties of Houdry gasoline is the fact that a considerable spread exists between its octane numbers by the Research (1939) method and by the L-3 and Motor methods. This indicates the superiority of Houdry gasoline to the thermal cracked product which shows a narrow spread.

It means that if a refinery is blending to a given

J. W. Newton, Magnolia refinery head, and E. J. Houdry on the occasion of Mr. Houdry's visit to Beaumont, July 21, to inspect Magnolia's new Houdry units

Control room showing panel board and instruments. This is but half of the room. On the other side is a similar arrangement of panels and instruments for No. 2 unit

Research octane number a smaller quantity of Houdry gasoline is required or that less tetra-ethyl lead needs to be added in blends containing equal quantities of Houdry and thermal cracked gasoline. This is shown graphically in the accompanying charts. The cycle stock from the Houdry, as mentioned previously, is chiefly No. 2 heating oil.

The heavy gas oil can be used to upgrade fuel or for thermal cracking stock. The tar produced has been blended entirely in the refinery production of fuel. The separator and vent gas is processed for absorption gasoline through the refinery gas plant while the stabilizer gas is put into the fuel system.

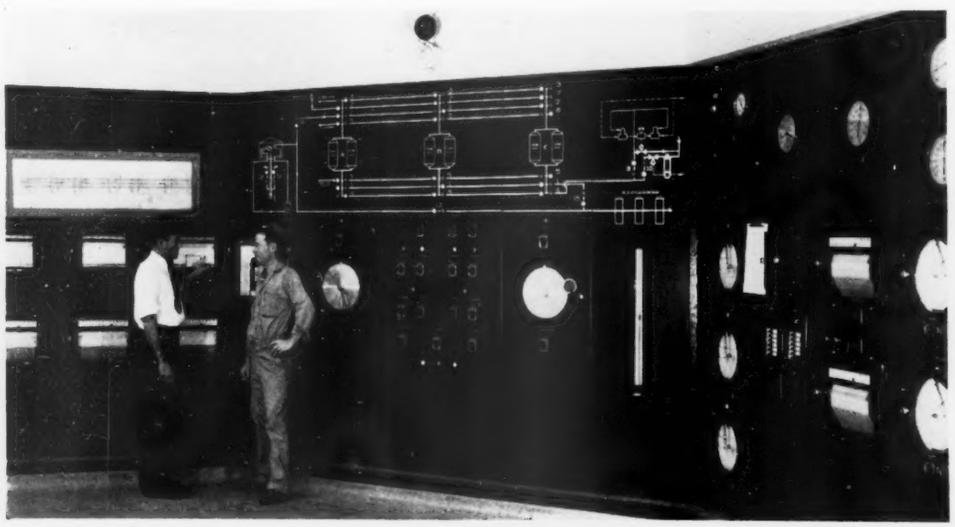
One of the interesting facts in connection with the operation is that there is a 96 per cent liquid recovery not including excess butane. The tar shown in the tables is a virgin product from tar separation ahead of the cases.

Among other significant considerations in the construction and operation of the Houdry unit at Beaumont is the fact that practically all of the major equipment—towers, exchangers, catalyst cases, piping, pumps, etc.—is of ordinary steel construction. Very little expensive high alloy steel is used anywhere. This applies to equipment for handling oil, salt, water, steam, and air. The use of catalytic cracking marks a trend back to lower pressures. Lowered pressure has enabled considerably smaller pumping equipment. Since the operation is carried out in the vapor phase considerably larger transfer lines are required.

Any disturbance in the operation of the unit has less chance of shortening the time between periodic shutdowns for general inspection than in thermal cracking units because the catalytic cases can be by-passed when necessary. By such disturbances we mean the mechanical failures which any large refining plant may experience; such as failures in the gas plant, local or general power disturbances, and troubles of similar nature which might cause a complete stoppage of a thermal unit. In the instance of the Houdry plant the cases may be by-passed within a few seconds so that the plant may be reduced to a circulation basis until the cause has been corrected. After the cause has been corrected it is an equally simple procedure to restore the unit to its normal function.

The No. 1 Houdry unit occupies a ground area 389 feet long and 140 feet wide. The catalyst case structure is 156 by 47 feet and 48 feet high. The structure for the salt equipment and storage is at one end of this structure and adds 37 feet to its length. Beyond this are the evaporators extending the structure 45 feet more. This structure is only 26 feet wide.

Magnolia's No. 1 Houdry catalytic cracking unit went



A close up of the cycle timer section of the control board. Red and green lights in the flow chart at the top of the board show valve positions in oil, air, and steam lines. The framed chart to the left shows the phase relations of all six cracking cases at any given instant

KELLOGG Combination Casinghead and Polymerization Plants . . . are adaptable to existing operations

The ability to vary the design of Kellogg combination casinghead and polymerization plants to suit existing plant facilities, feed stocks and capacity requirements should interest all manufacturers of natural gasoline.

Increased production of higher octane products characterizes these plants, in which the flexibility of vapor pressure and the quality and quantity of gasoline made are inherent.

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- Increased casinghead recovery
- Low labor costs
- Low utility requirements
- Dehydrated residue gas

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R-352

Table 2

Physical Properties of Liquid Feed and Products May 13-21, 1939

Test	Crude Chg.	Stab. Gaso.	Hvy. Naph.	Gaso. Blend	No. 2 Fuel	Frac. Btms.	Tar	Tar Sep. O'vhd.
Grav. A.P.I.	21.4	59.8	34.0	44.0	24.0	18.3	12.2	22.5
I.B.P.	393	117	306	139	446	468	...	365
10%	475	150	340	188	470	515	...	590
50%	620	208	366	316	515	610	...	...
90%	...	263	401	393	597	...	...	...
E.P.	...	304	428	420	683	...	...	...
Rec.	...	98	98	98	98	...	...	...
% Rec. at 700° F.	69	...	...	...	...	82	...	75
Octane	...	82.0	82.0	82.0	...	...	...	...
R.V.P.	...	6.8	...	3.6	...	...	...	...
Color	...	21	...	13	2½	6	...	Dk. 4
Flash	...	...	...	...	225	235	192	104
Visc.	...	...	...	...	...	...	28	...

on stream Feb. 9 of this year after over a year of construction. For that portion of the first run from March 1 through June 26, an average of 15,160 barrels per stream day of charge was processed. The cases have been operated with approximately 95.5 per cent stream time efficiency.

Of the 4.5 per cent of the time that the cracking cases were not in operation most of it is attributed to causes not connected with the catalytic part of the process. Increased experience in the operation is expected to raise the efficiency of operation above this figure as it did average during two months of the period up to July 1. Known causes for time loss are being eliminated in No. 2 unit scheduled for starting Aug. 15. Time for construction of this unit was eight months. Construction of both units was by E. B. Badger & Sons Co.

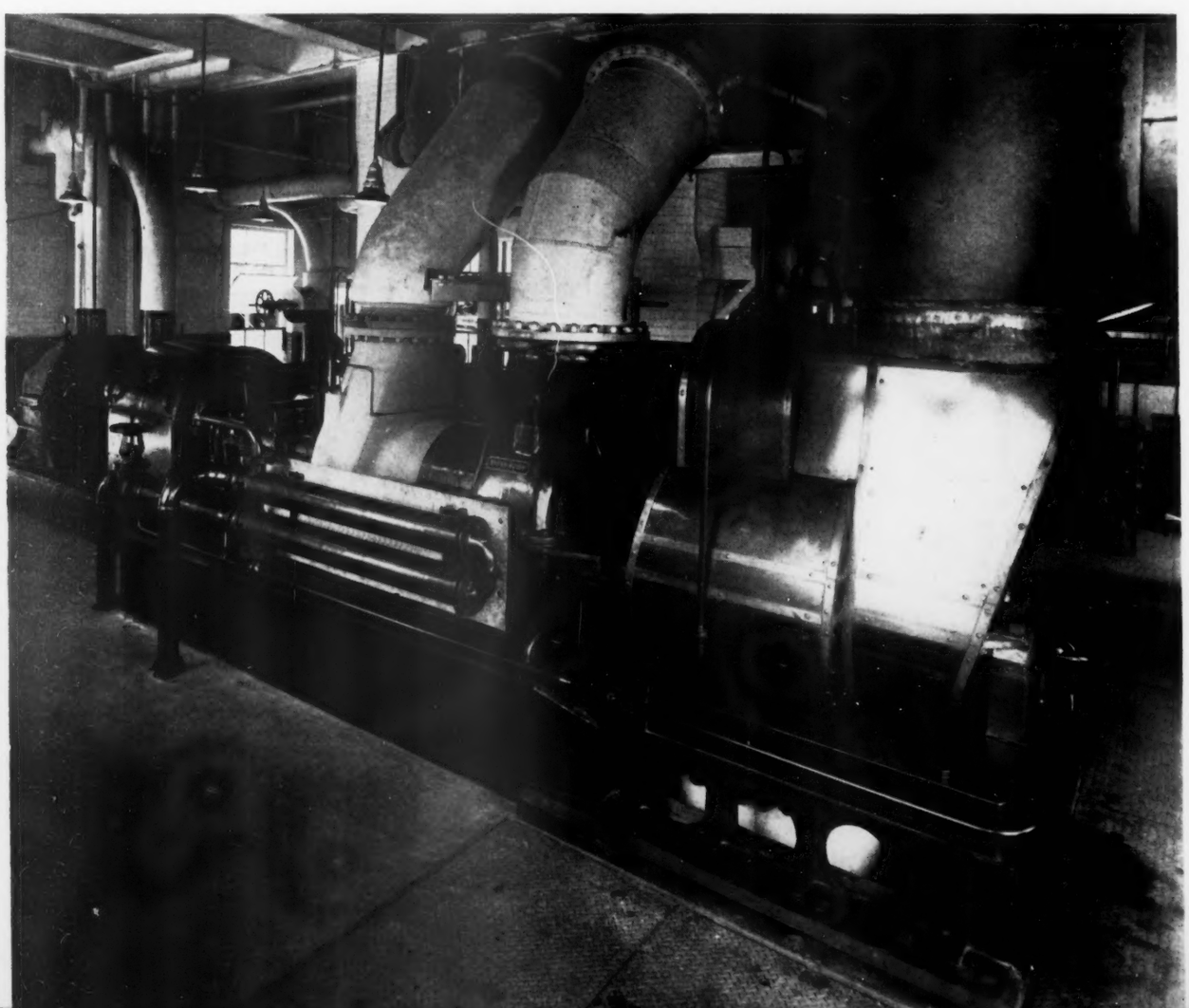
Podbielniak Analysis of Gas Products

Component	Frac. Gas.	Vent Gas.	Stab. Gas.
C_1	8.91*	47.11*	.89
	21.17	13.94	...
C_2	12.34	11.13	2.40
C_3	24.95	11.02	36.62
I-C_4	13.86	5.88	52.03
C_4	8.24	3.37	7.97
C_5	8.09	4.41	.09
C_6	2.44	3.14	....
MW	40.03	35.22	51.54
Sp. Gr.	1.382	1.216	1.779

* Fixed Gases.

The best idea of the operation of the Houdry unit may be derived by following through the accompanying flow diagram. This is somewhat complicated by the fact that three separate fluid flows are essential to its opera-

The turbo-compressor unit takes heat from regenerative gases from the catalyst cases to drive the compressor which supplies air to the cases. With gas burners in the return lines it also drives a generator supplying additional power. The turbine at the far end of the shaft is used as a starter



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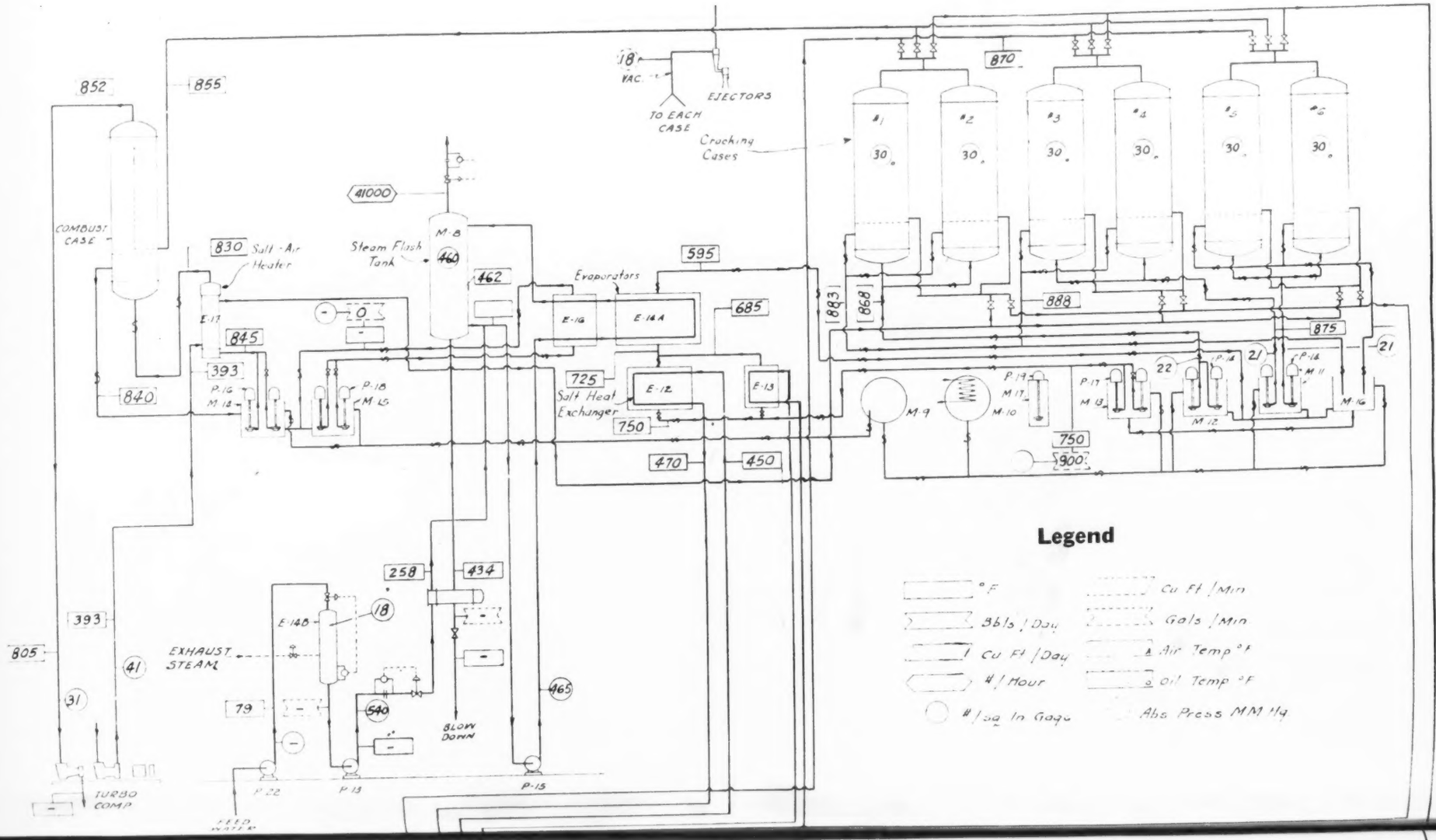
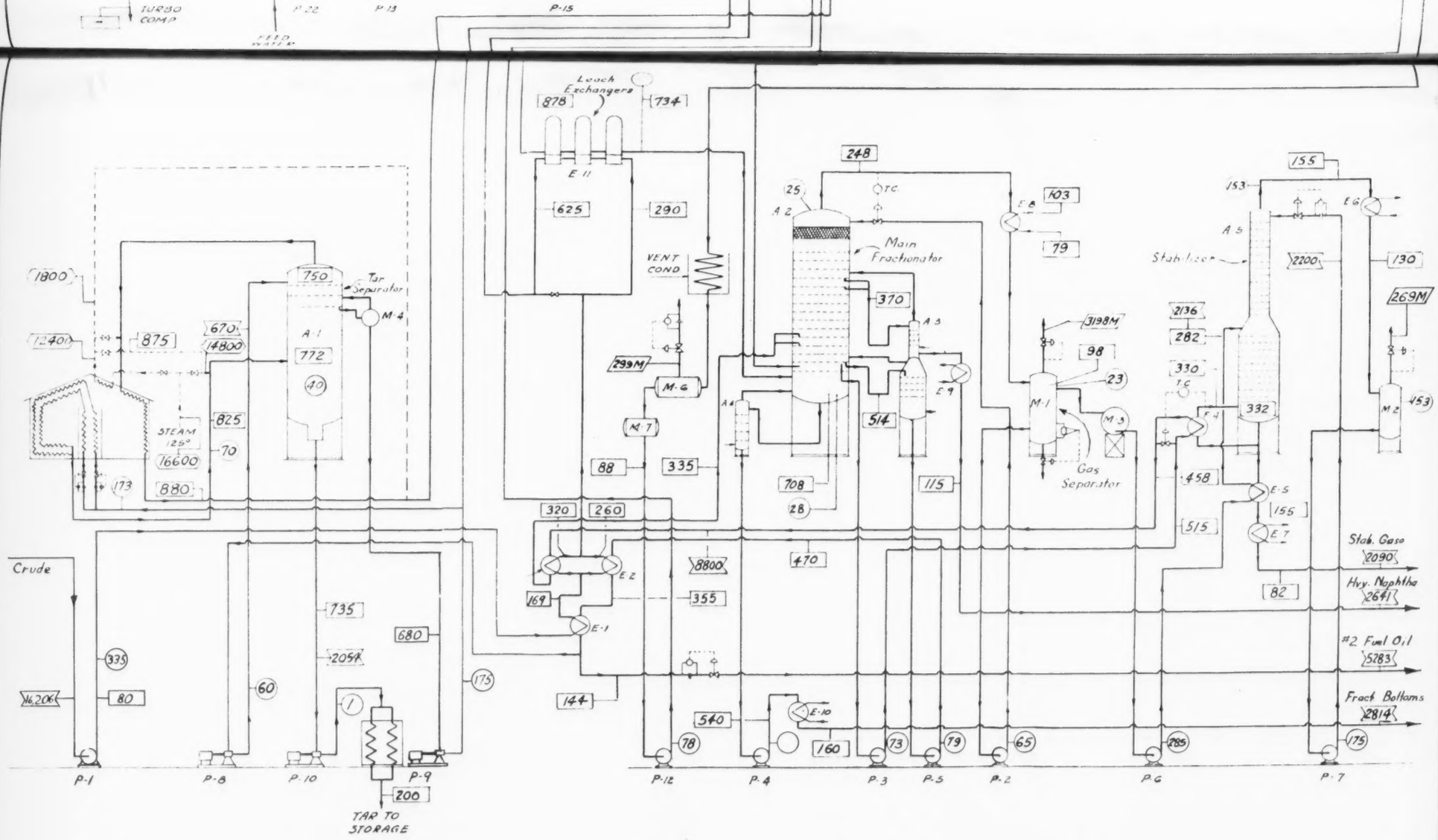
Houdry Process Flow Chart



Exclusive Story of the New Type Houdry Process



Flow diagram of Magnolia's Houdry unit showing the flows of oil, regenerative air and gases, and the liquid salt temperature control medium

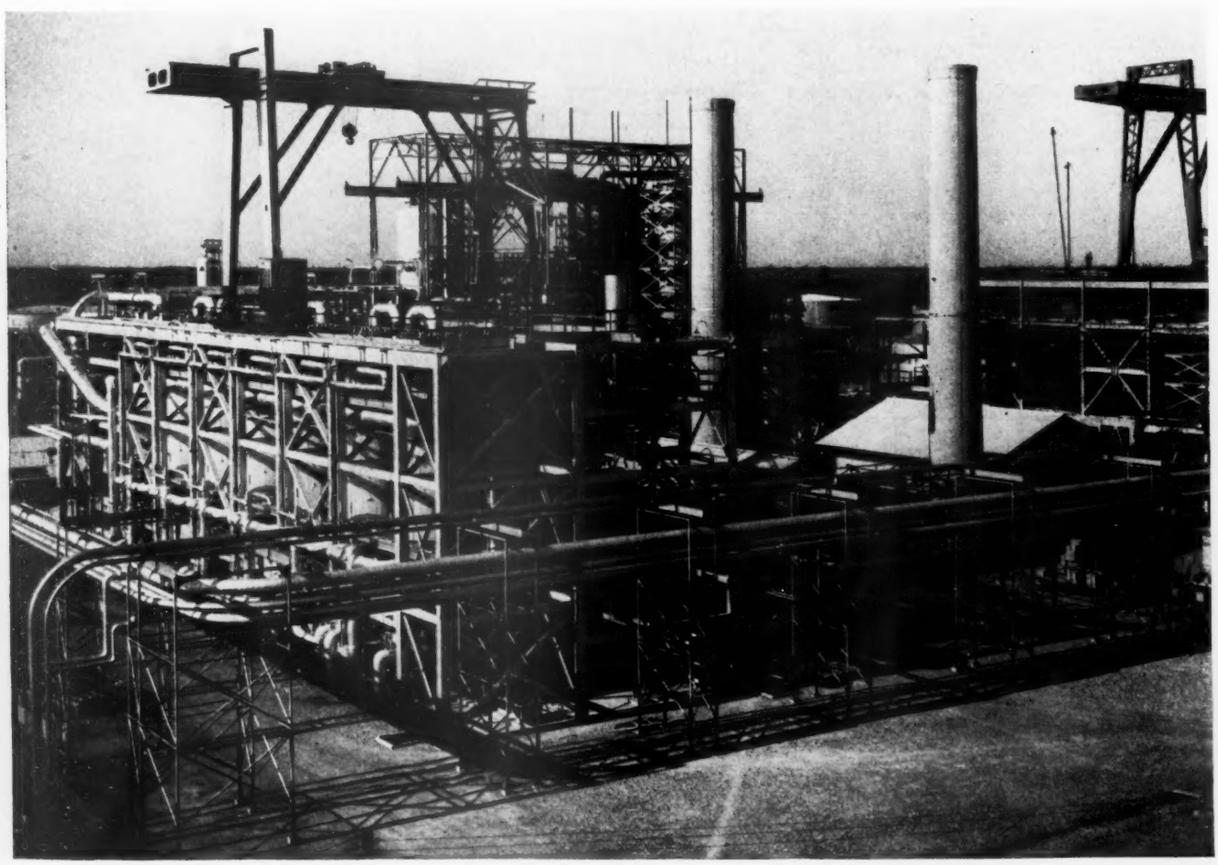
WESTINGHOUSE EQUIPMENT helps set 3300 hour record . . .

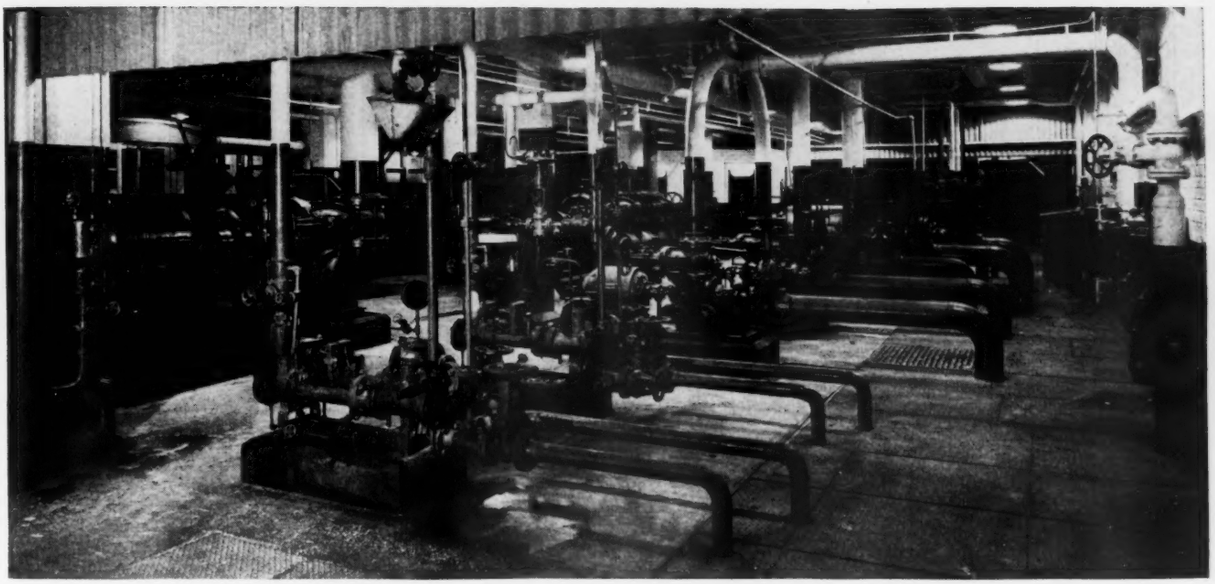
Magnolia Petroleum Company's No. 1 Houdry unit set a record of 3300 hours on its first commercial run between February 8 and June 26.

This is an outstanding accomplishment for a new type process incorporating so many new and revolutionary steps. Westinghouse is proud of its part in this fine record.

Although a new process operating with new equipment, the unit maintained a stream time efficiency of 95.5 per cent for the entire run of 3300 hours and near the close of the run was operating at more than 98% stream time efficiency.

No. 1 Houdry unit at Magnolia Petroleum Co's. Beaumont, Texas, Refinery





General view of Houdry No. 1 pump house

Westinghouse motors for hard jobs

Thirty-one electric motors ranging from 1 to 250 horsepower installed in Magnolia's No. 1 Houdry unit have helped keep temperatures and rates of flow at optimum levels.

Including standbys, the unit is equipped with a pumping capacity of 1,171,474 barrels per day. Most of these pumps are centrifugals powered by electric motors or steam turbines.

Among the jobs performed by this equipment is the circulation of 1,000,000 pounds of molten salt for recovery of heat from catalyst and for keeping catalyst temperatures at closely controlled levels.

Most of the motors and turbines installed in this unit bear the Westinghouse name plate and the Westinghouse guarantee of quality which insures trouble-free operation.

If you have a problem which involves efficient use of electric energy and which demands uninterrupted service 24 hours per day, month after month, call on Westinghouse engineers. They can place the resources of the entire Westinghouse organization at your disposal.

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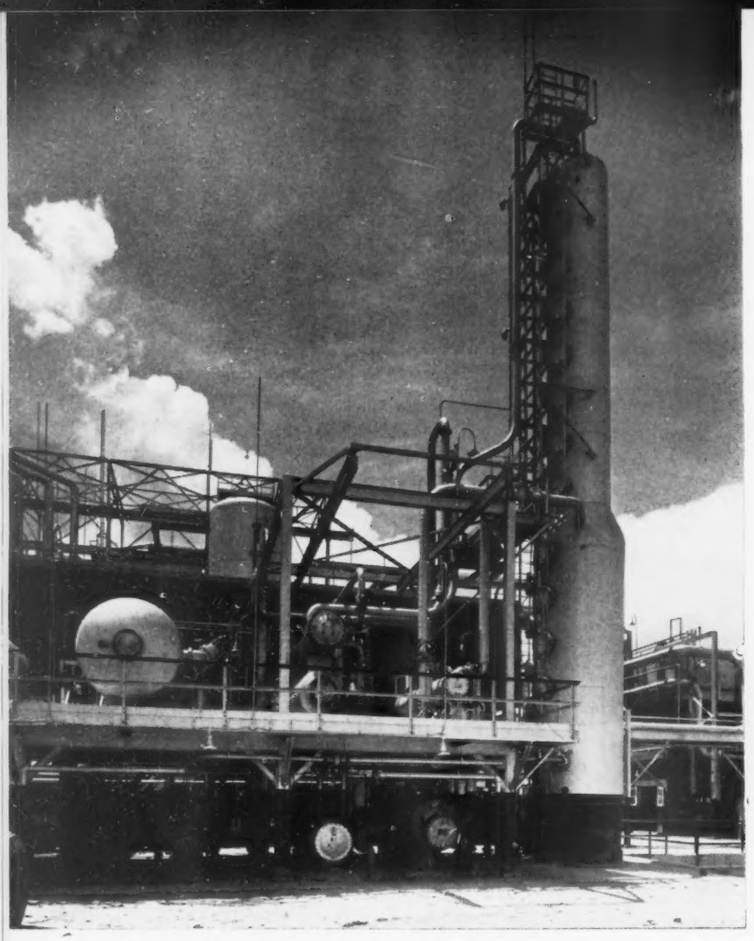


The stabilizer column and auxiliary equipment is in back of the control house. The turbo-compressor house is shown at the right of the column

tion instead of an oil flow only, as in ordinary cracking units. In addition to oil flow, air is circulated for the regeneration of the catalyst in the cases and a eutectic mixture of salts in the molten liquid phase is circulated for the maintenance of proper temperatures in the catalyst cases, removal of heat from these cases, and for steam regeneration.

Oil Flow

The crude oil charge is picked up from storage through a 10-inch line by centrifugal pumps and discharged at 325-350 psi. through a 6-inch line to conventional heat exchanger equipment from which heat is absorbed from the cracked products. It is raised to 169 degrees Fahr. by taking heat from No. 2 fuel oil, then to an average of 290 degrees Fahr. by parallel flow in exchange relation to the same fuel oil and a circulated reflux equivalent to the No. 2 fuel oil. A portion of charge then passes through a 6-inch line to three vapor line Leach exchangers, taking heat from synthetic crude and steam from the cracking cases which raise the temperature about 160 degrees. Additional preheat is gained by exchange against the heat transfer medium, molten salts, circulated from the same supply as that being pumped to the catalyst cases. At a temperature of 470 degrees Fahr. the charge splits into two parallel 6-inch streams to pass through an Alcorn heater. From the center convection section the parallel streams pass to the roof of one radiant section and then to the floor tubes. The temperature of the charge is raised in this step to 825 degrees Fahr. The inlet pressure to the furnace is 175 psi. and discharge pressure from the liquid side of the radiant section is 75 psi.

An 8-inch transfer line carries the heated charge to the tar separator tower after having approximately 8 per cent by weight of superheated steam added. The temperature here is 800-825 degrees Fahr. and pressure is 40 pounds. Separation in the tar separator tower is by a combination of distillation and centrifugal methods. Vapors are released from the transfer line into the separator tower at 40 psi. They enter the tower tangentially

Table 3

Houdry Unit Operating Data, May 13-21, 1939

Time on Stream	98.01
On Stream Time, Hours	211.7
Off Stream Time, Hours	4.3
Total Time on Stream, Hours	2,318
No. of Runs on Each Case	423.4
Total Runs on Each Case	4,636
Fuel Gas Consumption, MM B.T.U.'s per day	2,988
Steam Consumption, Pounds per Day	1,250 M
Steam Production, Pounds per Day	1,000 M
KW Consumption	23,100

Table 4

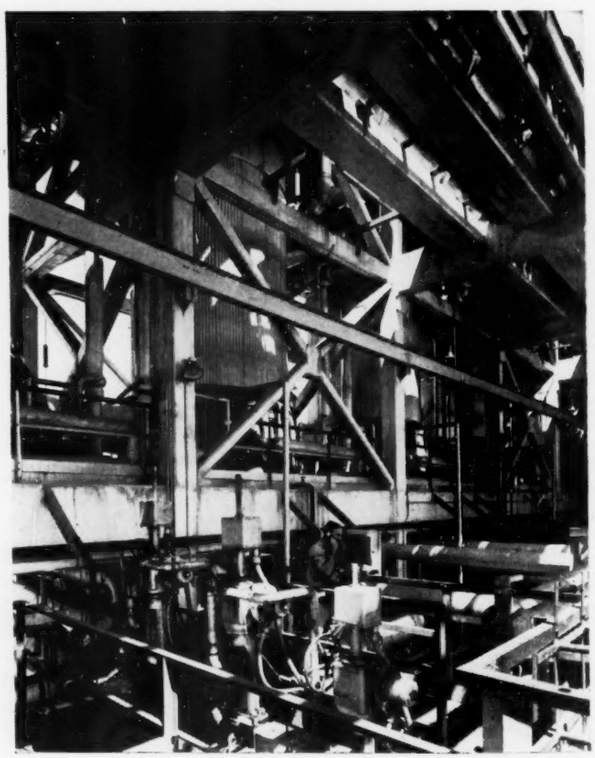
Houndry Unit Feed May 13-21, 1939

Stock	Bbls.	%
Mirando Crude	12,769	78.79
Mirando-O'hern Resid.	2,998	18.50
Coastal Gas Oil	439	2.71
Total	16,206	100.0
Net Virgin Chg. to Cases	13,870	

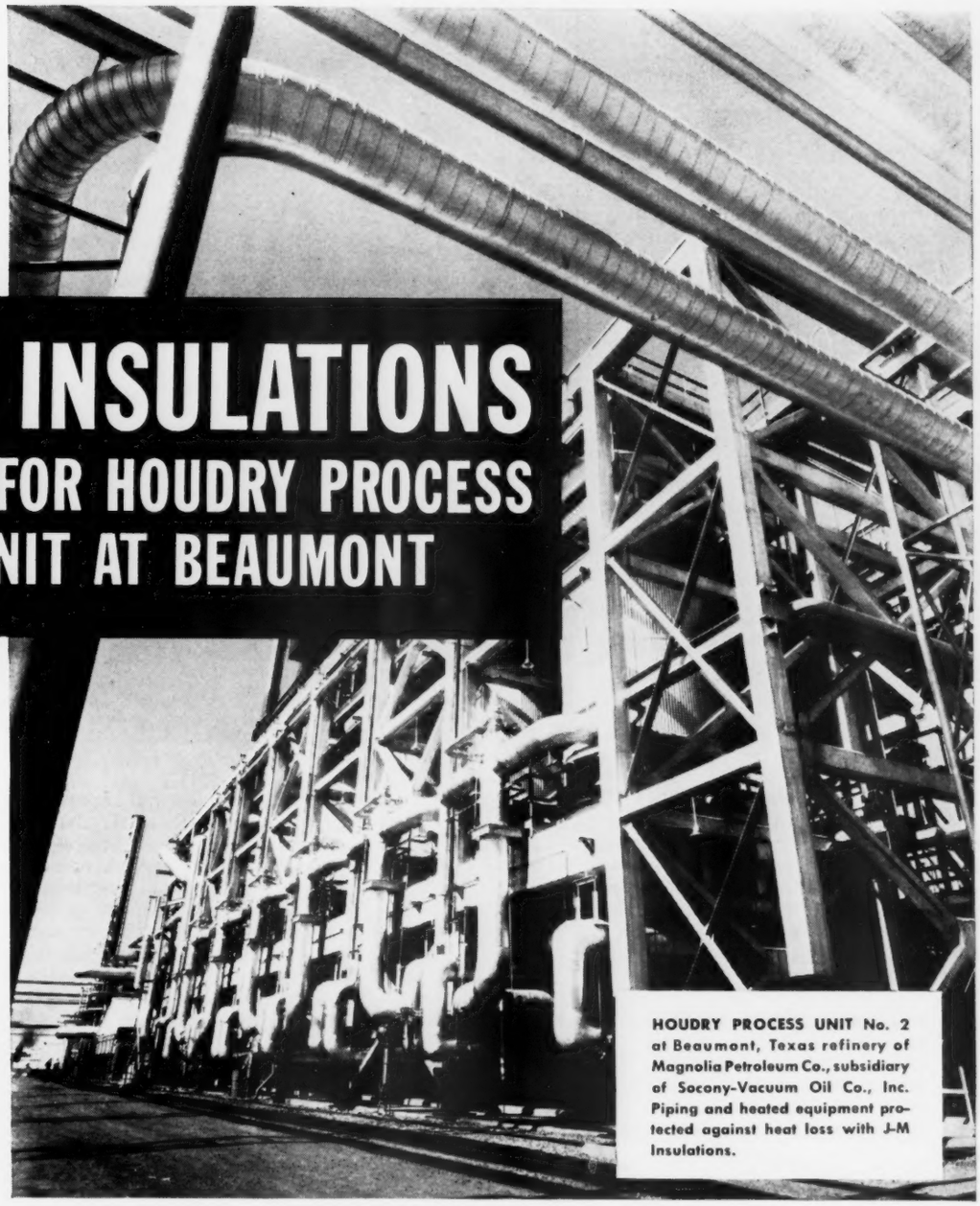
and pass upward around the lip of an inverted pan. In the top of this tower the vapors pass through three bubble trays that are refluxed lightly to hold 750 degrees Fahr. top temperature. Vapors from the tower are passed through a 24-inch line, re-entering the furnace on the vapor radiant side and are superheated, by making two passes through ten parallel tubes each on roof and floor of the furnace, to 880 degrees Fahr.

From this point the vapors pass to the catalyst case inlet manifold through a 24-inch line taking a 10-degree drop in temperature on the way and are directed through automatic motor operated valves into one of the three pairs of catalyst cases then in the oil phase of operation. These are maintained at 900 degrees Fahr. and 30 psi. Leaving the cases, the vapors pass through a 24-inch line to the shell side of the Leach vapor line exchangers and then through a 20-inch line to enter the main fractionating tower at 734 degrees Fahr. and 25-28 psi.

Before going further some general information about the catalyst would be of interest. Total cost of cracking



Down in the interior of the case structure, one of the operators is in communication with the control room. Three catalyst cases are visible in the background and three of the motor-operated valves at the man's right. Two of these are in 24-inch air and oil lines to and from the catalyst cases



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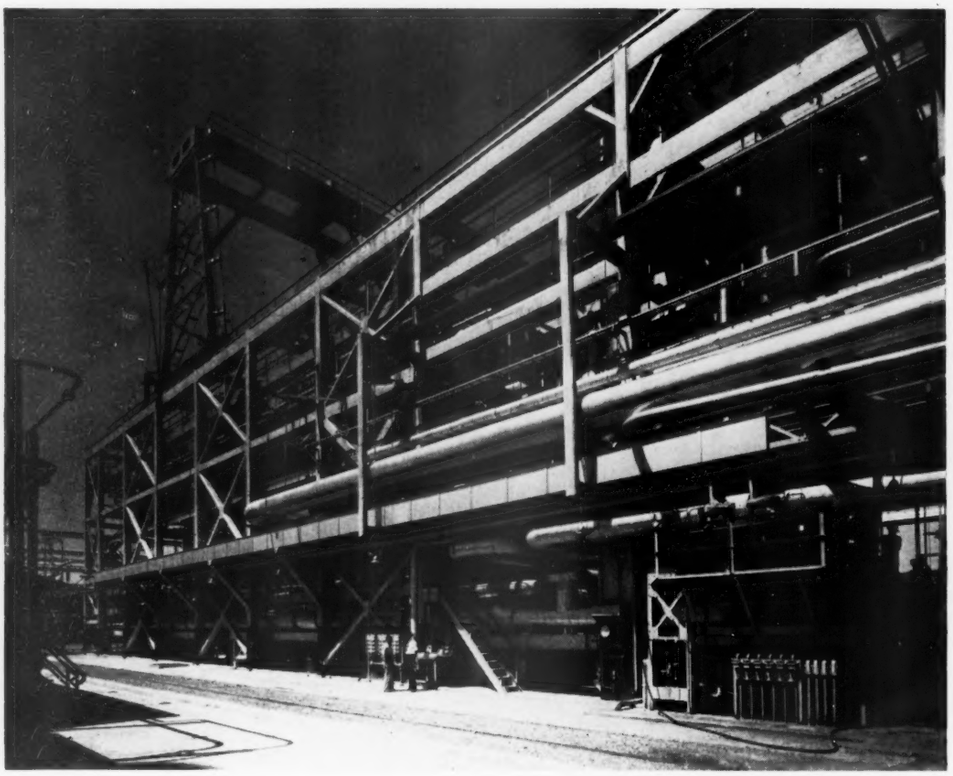


The Houdry unit structure on the side toward the furnace

catalyst was approximately $18,000. Six catalyst cases are employed in pairs. At the present time each pair of cases is on stream ten minutes, regeneration requires ten minutes, and preparation for these two phases of operation require five minutes each. The timing of these shifts is all handled automatically from the control room, the control instrumentation or cycle timer being one of the leading features of the Houdry operation. More will be said of this further on.

The catalyst cases are 10 feet 7 inches in inside diameter and 38 feet in over-all height. Little detail can be given on case construction and it will suffice to say that they are all of a special design which gives the proper relationship between flow of oil and air through the catalyst and of the heat control medium which governs the reactions taking place in the vessel.

From the main fractionating tower a heavy gas oil is withdrawn through the stripper from the bottom of the tower. No. 2 heating oil and heavy naphtha are withdrawn from the stripper as side streams through 8-inch and 6-inch lines respectively. The overhead light naphtha goes through condensing equipment and a gas separator by way of two parallel 20-inch lines. The light naphtha is fed through a 6-inch line to the stabilizer from which it flows to storage through a conventional doctor sweetening process of the sodium plumbite type. Heavy naphtha can be sweetened simply by a caustic wash under the present conditions and charge stock. One of the contrasts between the Houdry cracking and thermal cracking is that sulfur is converted largely to hydrogen sulfide rather than to mercaptans and is disposed of with the fuel gas.

The preheat control is similar to that used on any distillation equipment. The temperature of the furnace outlet can be set on an instrument for any desired point within the capacity of the heater. A back pressure regulator controls the furnace outlet pressure. The tar separator tower top is controlled by reflux on hand control. The amount of stock taken overhead depends on the steam introduced and the top temperature. This is controlled to maintain a good color material overhead with a bottoms of approximately 12 API gravity. The overhead from this tower gains superheat by re-entering the furnace, and the temperature is controlled to be about the same as the catalyst.

The tower and an auxiliary are handled in the conventional manner but special consideration has to be given its design because the composition of the vapors entering is somewhat different from those in a thermal cracking unit. A gas oil is drawn from the No. 2 fuel tray to be circulated for reboiler heat and returned to the tower through crude preheaters to supply the only intermediate reflux. The overhead is controlled by automatic reflux to give any desired end-point material. The back pressure regulator on the overhead product separator controls the pressure on the entire oil system from the tar separator on.

The stabilizer is controlled in the customary manner but it is not possible directly to make as high vapor pressure gasoline as on thermal units due to the greater flash loss occasioned by the low pressure operation of

Table 5

Product Yields May 13-21, 1939

Charge and Products	Bbls.	%
Stab. Gasoline	2,090	12.90
Hvy. Naphtha	2,641	16.30
No. 2 Fuel	5,283	32.60
Fract. Btms.	2,814	17.36
Tar	2,054	12.67
Frac. Gas (M ft. 3)	3,198	....
Vent Gas (M ft. 3)	299	8.17
Stab. Gas (M ft. 3)	269	....
Slop Gas, Loss and Unaccounted*	1,324	....
Total Charge	16,206	100.00

Corrected Gasoline Yields

	Barrels	% Case Charge	% Crude
Total Gasoline	4,731	34.11	29.20
Total Gasoline Corrected to 410° F. E.P.	4,667	33.65	28.80
Am't. of 43.1-pound C.V.P. Stock from Absorption Gasoline to Raise C.V.P. to 11.0 pounds	730	5.26	4.50
Total Gasoline Corrected to 410° F. E.P. and 11.0 C.V.P.	5,397	38.91	33.30
Excess Lt. Ends at 73.7 pounds C.V.P.	263	1.90	1.62
C_3 and Lighter, lbs.		190,431	
C_3 and Lighter, Wt. % of Crude			3.63

* Includes absorption gasoline.

TABLE 6

Blending Value of 370°F. E.P. Houdry Gasoline with 300°F. E.P. East Texas Gasoline

Test	Houdry	East Texas
Gravity, API at 60° F.	56.4	67.7
Distillation:		
I. B. P., °F.	102	98
10%	143	140
20	169	156
30	193	171
40	216	184
50	235	196
60	254	206
70	270	217
80	288	230
90	309	254
E. P., °F.	370	306
R. V. P.	8.6	8.6
Color	15	30
Octane, L-3	82.6	65.1

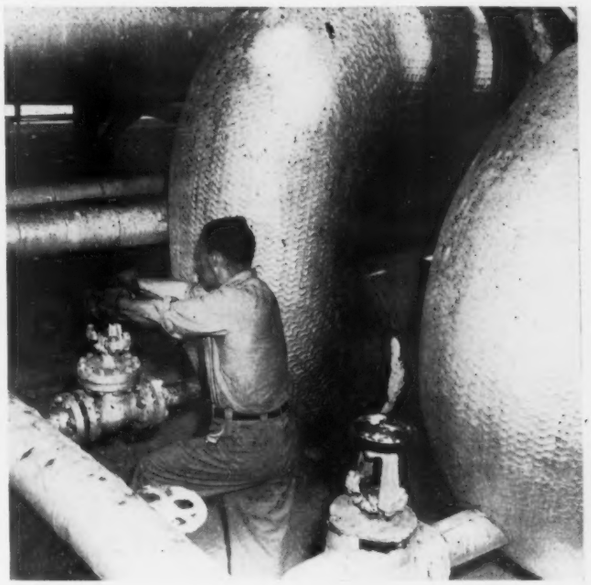
	L-3 Octane No.	Arithmetic Blending Value of Houdry
Blend of 20% Houdry—80% East Texas	70.4	91.5
Blend of 30% Houdry—70% East Texas	73.0	91.4
Blend of 40% Houdry—60% East Texas	75.2	90.3
Blend of 50% Houdry—50% East Texas	77.2	89.2

the fractionator separator. This, however, is said to be a situation peculiar to Magnolia No. 1 because the stabilizer is located at the Houdry unit whereas the rich gas passes into the refinery general absorbing system. If the absorber had been built at the Houdry unit then the absorbed gasoline could have been blended with the condensed gasoline and high vapor pressure motor gasoline taken from the stabilizer.

Regenerating Air Flow

The air required for regeneration is drawn through a 30-inch line from the atmosphere and through filters by a Brown-Boveri turbo-compressor and after a certain degree of heating is sent to the cases in regeneration. Fumes leaving the cases are products of combustion of the coke deposits on the catalyst and contain carbon dioxide, carbon monoxide, etc. These are passed through a 24-inch line to a combustion case which completes, by means of a special catalyst, combustion of carbon monoxide and any hydrocarbons to carbon dioxide and water vapor. The fumes then enter the Brown-Boveri hot-gas turbine, directly coupled to the compressor of the turbo-compressor unit and are then exhausted to the atmosphere. The turbine supplies all the power required for the compression of the air.

Top of the catalyst case structure shows the fill caps for charging new catalyst and oil inlet lines. The flooring supported by the cases has raised three inches due to thermal expansion



Opening a bleeder valve on the air inlet line to the catalyst case manifold. The bend to the right is the oil inlet line to the case manifold. This photograph illustrates the large size of lines used in the process

The gas turbine and compressor set is an unusual machine and impresses the casual observer that perpetual motion has been established. It is a machine developed some years ago by the Brown-Boveri Company of Switzerland, and while the principle has been in use for several years in Europe as a part of the Brown-Boveri Velox steam generator, it has been introduced into the United States through its application to the Houdry process.

Not only does the gas turbine operate the air compressor but also is coupled to a synchronous generator rated at 600 KW. This may be operated largely as a governor or is used to produce electric power. The turbine compressor shaft speed is 6000 rpm. and the generator turns at 1800 rpm. through a reduction gear. On the shaft with the generator is a steam turbine used in starting up the turbo-compressor unit. This operates through a free wheeling shaft coupling. The steam turbine has a rating of 330 HP at 1800 rpm.

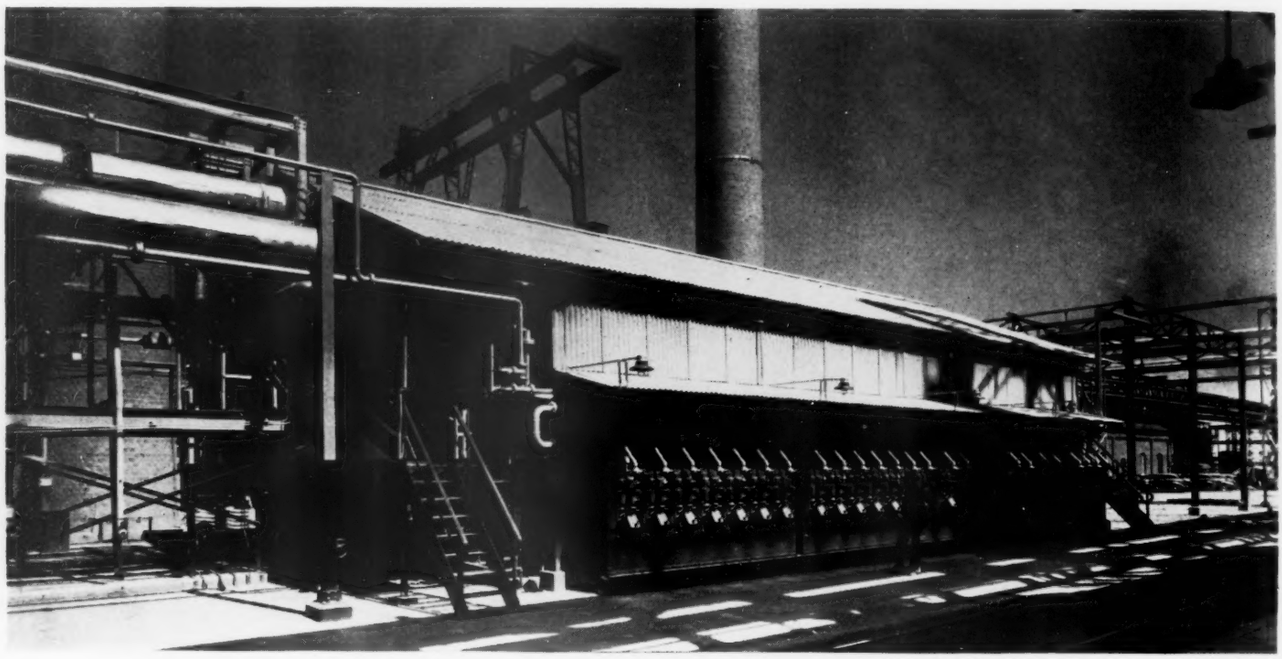
Molten Salt Flow

Salt in the molten state is used only as a circulating medium for maintaining a proper temperature in the cases. This salt mixture has a melting point of close to 300 degrees Fahr. and is maintained above 370 degrees Fahr. during circulation. The Magnolia catalytic units are the first, as previously mentioned, to employ salt in the place of water for this purpose. The salt is a mixture of exact proportions whose melting point is lower than that of any of the component salts. There are a million pounds of salt in the system. The storage tanks are all steam heated and carefully insulated and the lines all have steam tracers as well as insulation to insure that no solidification takes place in the system.

There are four salt pumps for the three pairs of catalyst cases, one of which is a standby, and two, including standby, for the combustion case. Salt is pumped to the cases by sump type pumps. The salt flows to the cases through a 16-inch line and enters at the bottom. After flowing through the case it flows through eight 6-inch lines joining into two 12-inch lines to a seal tank. From the seal tank it flows by gravity to the pumping tanks through 24-inch and 14-inch lines.

A portion of the salt is pumped through 8-inch lines to the crude heat exchangers and the steam generators or evaporators and is returned to the main circulating system for temperature control.

The steam generating equipment mentioned above



There are 28 gas burners on each side of the Alcorn furnace which preheats charges going to the catalyst cases and the crude oil before going to the tar separator. All tubes in radiant sections are on roof and floor

consists of exchangers with salt flowing countercurrent to water. The salt-crude preheater is similar. This equipment makes 450-pound steam which goes to the power-plant turbines.

The operating personnel of the Houdry unit includes eight operators and two maintenance men for each shift and, in general, these men are of the average qualifications found in the Beaumont refinery. They came from practically all units in the refinery and were placed as nearly as possible in jobs similar to those with which they were familiar. Two of the head operators had had no previous cracking experience on thermal units but this has not proved a handicap.

Comparison of Houdry and Thermal Processing From An Operating Standpoint

Several comparisons have been made on the Houdry catalytic processing versus thermal combination units, among which is a comparison of operation of two processes of similar cracking capacity from actual data. There are several items of mechanical equipment that are unique to Houdry operation that have no application on a thermal unit. These include 28 electric motor-operated valves, 23 of which are controlled automatically by a cycle timer, a turbo-compressor for supplying regeneration air, 11 salt pumps for cooling-medium circulation, and an elaborate steam generation system for removing excess heat from the molten salt.

A comparison of the mechanical equipment for both types of operation is made in Table 7. The table reveals many interesting things. The Houdry unit has 80 per cent more heat exchanger surface and 30 per cent more condenser and cooler surface than the thermal unit, based on barrels of gasoline produced. There is only 60 per cent as much oil pumping capacity on the Houdry as on the thermal combination unit, but when the pumping equipment required for salt and steam generation is considered, the Houdry pumping capacity is 4.5 times that of the thermal unit. The pumping equipment on the Houdry is considerably cheaper than for the thermal unit, however, since the pressures and temperatures are lower. The salt pumps operate at a high temperature, but are of such construction that little is added to their cost as a result of the temperature. One thing that is immediately noticed by an outside observer is that the size of transfer lines is considerably greater than is found in thermal cracking units. Up to 24-inch lines are employed for oil, air, and salt flow.

The utilities for the two types of operation are compared in the table shown at bottom of this page.

Supplementing the high pressure steam figures given above, the Houdry unit turns about 10,000 pounds additional of low pressure steam back to the refinery unit. In fairness, however, it must be pointed out that the gas figure is above the design figure (approximately 130 per cent normal) because the heat exchanger was fouled when these figures were taken. Further, the gas requirements were a function of through-put rather than of gasoline produced and as noted previously this unit was designed for high production of No. 2 fuel with lower than normal gasoline yield. The fact that the Houdry requires no great amount of power than the thermal, in spite of the considerably greater volumes pumped, is due to the comparatively low pressures on the discharge of all pumps.

There was expected to be a net steam production on the Houdry Unit. This was not realized because less coke is being produced than calculated and there is more radiation loss than estimated.

The Houdry unit has not been installed long enough to arrive at any certainty about maintenance. However,

Utility Requirements

	Thermal Unit			Houdry Unit		
Material	Units/Day	Units/Bbl. of Charge	Units/Bbl. of Gaso.	Units/Day	Units/Bbl. of Charge	Units/Bbl. of Gaso.
Gas, B.t.u.'s	2535 MM	195 M	416 M	2988 MM	184 M	554 M
Steam, pounds	1261 M	97	207	250 M	15	46
Electricity, kwh's	26251	2.02	4.30	23100	1.43	4.28
Water, gpm	13500	1.04	2.21	10340	.638	1.92

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One of the many orders for Case Overhead Heat Exchangers for Houdry plants, furnished by the

C. H. LEACH COMPANY
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This photograph shows a few of the units furnished on this order.

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Table 7

Equipment Requirements

Type of Equipment	Thermal Unit			Houdry Unit		
	Units	Units/Bbl. of Charge	Units/Bbl. Gaso. Made	Units	Units/Bbl. of Charge	Units/Bbl. Gaso. Made
Sq. ft. of heat exchanger surface	19,740	1.52	3.24	31,699	1.96	5.87
Sq. ft. of condensing and cooling surface	15,470	1.19	2.54	18,042	1.11	3.34
Oil pump capacity installed, B/D	295,460	22.70	48.44	157,611	9.73	29.20
Salt pump capacity installed, B/D	.....	.....	.....	965,828	59.57	178.96
Water pump cap. for steam generation, installed, B/D	.....	.....	.....	48,035	2.96	8.90
Total installed pump capacity, B/D	295,460	22.70	48.44	1,171,474	72.29	217.06
Oil pump capacity actually used, B/D	144,400	11.11	23.67	39,310	2.43	7.28
Salt pump capacity used, B/D	.....	.....	.....	576,000	35.54	106.70
Water pump capacity used, B/D	.....	.....	.....	20,000	1.24	3.7
Total pump capacity actually used, B/D	144,400	11.11	23.67	635,310	39.21	117.68
Per cent of total pump capacity actually used	48.7	.....	.....	54.3	.....	.....
Hot oil pumps	17	.....	.....	10	.....	.....
Sq. ft. of heater tube surface	20,962	1.747	3.494	9,705	0.647	2.022
Total tube length of heater tubes, ft.	15,577	.....	.....	6,664	.....	.....

as the pumps used are of rugged construction and operating under mild conditions compared to those employed in other types of cracking, little maintenance is anticipated to keep them in operable condition for the life of the unit. Spares are provided as on the thermal unit so that shutdowns from pump failure are improbable, but whereas the loss of a pump can considerably shorten the length of runs possible with the thermal unit due to coking that might take place in the interval between a pump failure and the starting of the spare, no such damage can be done in the Houdry unit. Salt pumps may be more expensive to maintain but no conclusions can be drawn at present.

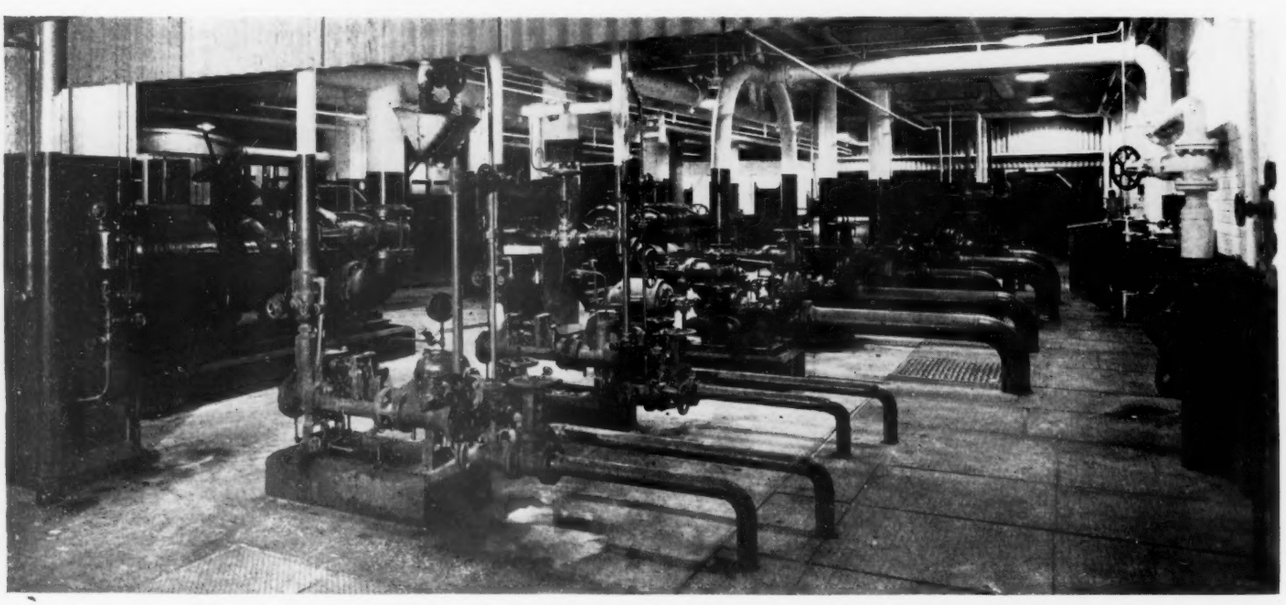
The Brown-Boveri turbo-compressor equipment is a finely machined piece of equipment operating at 6000 rpm. While some maintenance is expected, experience of other users on Houdry units indicate that little trouble is to be expected.

The heater should give no more trouble than a crude pipe still, and compared to combination unit heaters the expense of its maintenance is negligible. The main distillation tower will probably be even less expensive to maintain than pipe still equipment, but the tar separator tower has given some trouble due to coking. It is certain a few changes in the physical arrangement will eliminate this coking. Some of these have already been made.

All of the exchanger equipment except the salt exchangers and Leach vapor exchangers can be compared to similar equipment on any other unit from a maintenance standpoint. The Houdry unit is thought to be not as vulnerable to exchanger leaks as thermal units, as minor leaks at critical points will not make it necessary to shut down the unit. The salt exchangers have given no indication to date that they will require more than ordinary servicing, but they may need more frequent attention than the rest of the equipment.

To date the motor operating valves and auxiliaries have operated satisfactorily with only occasional packing of the valves. Frequent operation of these valves has revealed no tendency toward excessive wear. These valves are substantially the same as those that were developed for other Houdry plants that have been in operation for two years or more. The cycle timer is considered a remarkable performer and has been eminently satisfactory in accurately controlling the operation involved in the change of cases. Since the unit at Beaumont went into operation only last February no long time data is available on the amount of catalyst case maintenance that will be necessary. However, experience on development cases and on cases of other types indicate only inspection for corrosion will be required for several years. The over-all maintenance cost for the whole plant is expected to be about one-half that of the combination thermal unit.

While it is true that a portion of the steam required on the No. 1 Houdry unit is out of balance with production there is no reason for concern on this point as far as a small refinery is concerned since on new units changes have been made which will eliminate these peaks and in fact could have been incorporated on the No. 1 unit if the refinery steam supply had demanded it. There is a slight surge in the electric power consumed but in

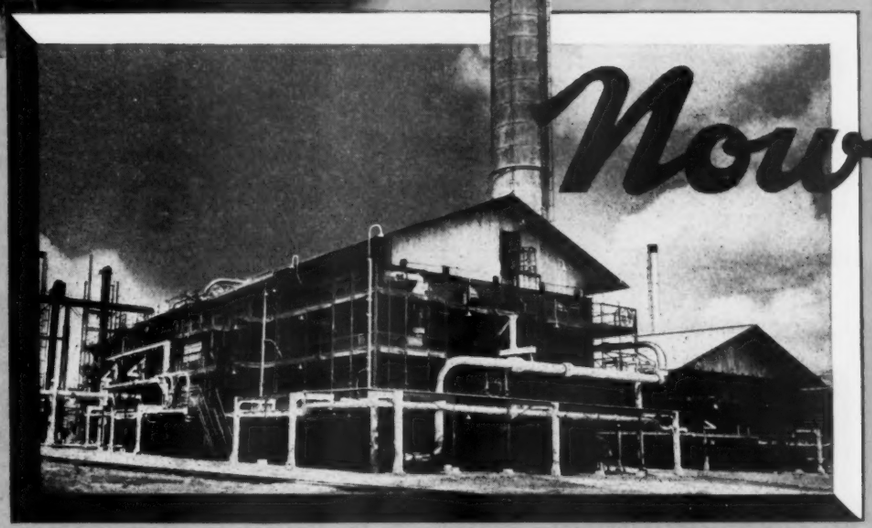


One of the two pump rooms below the main control room. To the extreme left is the water supply pump. In the foreground are steam pumps for gland oil and tar separator reflux. Behind them are the main fractionator reflux pumps, then the crude charge pumps at the rear

CRACKING FURNACES

THEN

Now



IN 1922, when the two Cross cracking furnaces shown at the top of the page were erected, they were of the most advanced design.

The two modern furnaces in the large illustration are a part of a recent Combination cracking plant erected under a Gasoline Products Company license. These furnaces embody in their construction the many improvements developed over a period of years.

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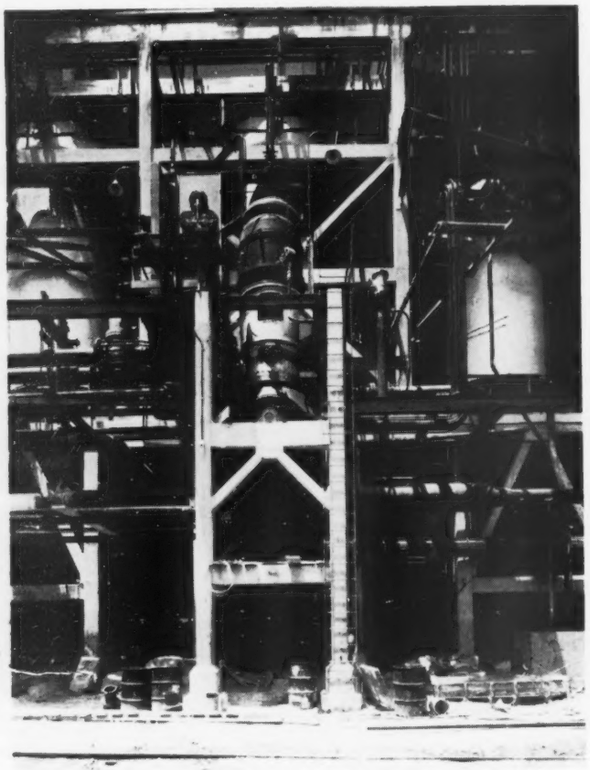


A construction picture of Houdry unit No. 2 showing the type of salt pumps installed. Steam tracers on salt lines may be seen on lines yet to be insulated. Three catalyst cases are shown behind the protruding pump structure.

locations where it might be an economic factor, where power might be purchased, this might be minimized.

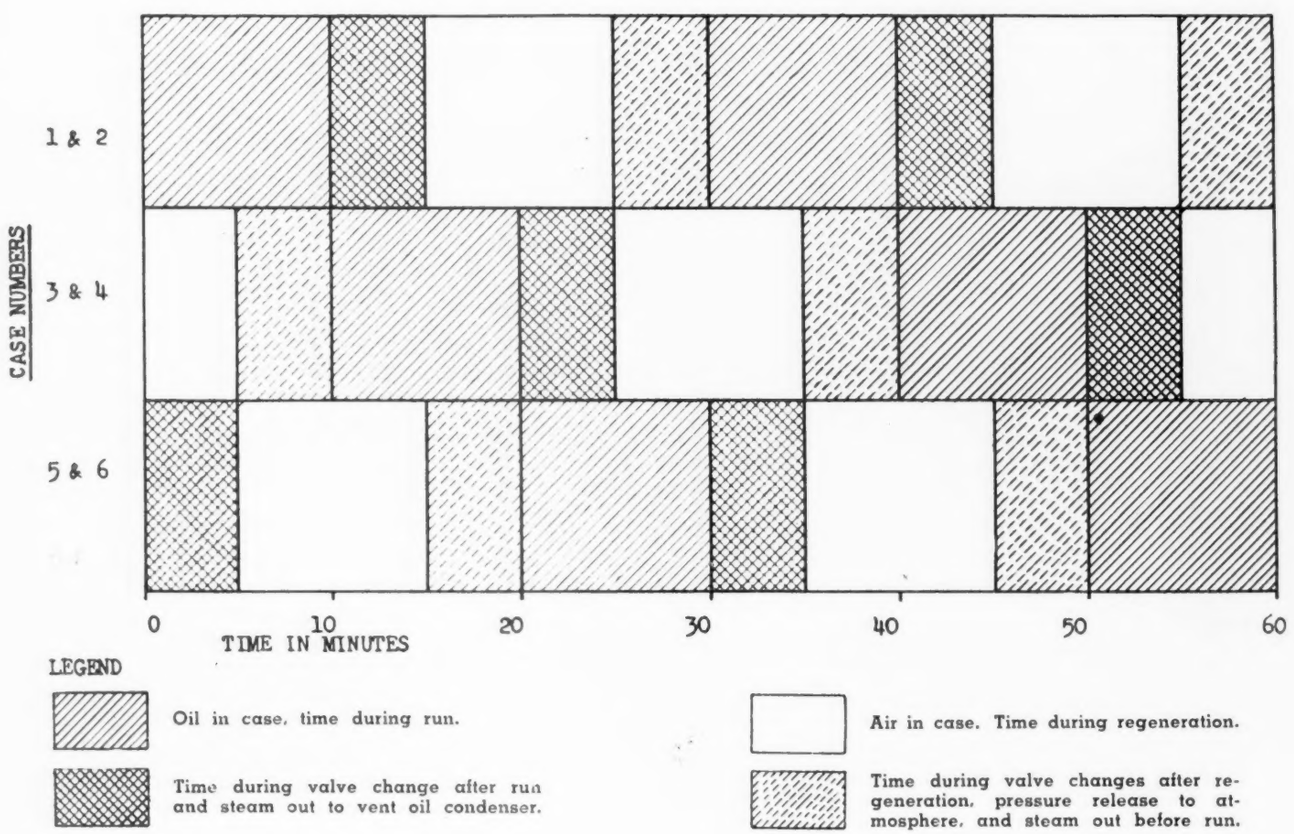
The catalyst cases were constructed by the Sun Shipbuilding and Dry Dock Co. The outside of each case is insulated with 8-inches of glass wool. It is an interesting fact that the unit as a whole required 40 carloads of insulation, or approximately 100,000 cubic feet.

In the operation of the six catalyst cases there are employed electric circuits and switch-board equipment suggestive of the telephone and central operating equipment. As intimated previously the valves connecting directly to the catalytic cases are operated by the cycle timer located in the control room, and in addition certain other valves may be operated from the control room although by choice they are not connected to the cycle timer.

The operator in the control room has constantly before him on the instrument board light signals on a flow diagram which tell him the phase in which each of the case pairs are operating. This may be seen on the accompanying photograph of the control room. In the design of the control equipment precautions have been taken which preclude the possibility of accident in case of failure of any of its component parts.

The heater for the unit is side-fired by 28 gas burners on each side. In the center convection section are 58 tubes of 5¼ inches outside diameter and 4½ inches inside diameter. The liquid radiant side has 34 tubes of this size. These tubes are arranged for parallel flow. On the vapor radiant side are 20 tubes of 7 inches O.D. and 6¼ inches I.D. These are arranged with ten tubes in parallel on floor and roof. A special feature here is a tapering header for maintaining equal pressures through all of the ten tubes. All of the tubes are 59 feet 6 inches in effective length and all are plain carbon steel except the 20 large tubes which are 2 per cent chromium, 0.5 per cent molybdenum steel. The total square feet of heater tube surface is 9705 or 0.647 per barrel of charge.

In general, the main fractionator, stabilizer, and auxil-



Diagrammatic picture of the flow cycles of the three pairs of catalyst cases as operated on Magnolia's No. 1 Houdry unit at Beaumont. A more complete chart is framed and hung on the control room wall. The chart does not show the few seconds overlap between cycles

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iary equipment are of standard construction, being designed according to A.S.M.E. specifications for the pressures and temperatures which they will have to withstand. The same can be said of the exchanger equipment.

The main equipment in addition to the towers and tanks include the exchangers, pumps and motors. Some of these have already been mentioned in the course of discussion of the flows. There are 34 exchangers of various sizes and services. The exchangers range in rated heat transfer duty from a million B.t.u.'s per hour up to approximately 13,000,000 B.t.u.'s per hour.

Pumps are largely centrifugals operated by electric motors. Among the exceptions are those for handling tar to the tar separator. These are piston pumps operated by steam. Steam turbines operate the pumps used in the salt-cooling circulation system. Total number of pumps including spares is 44 ranging in rated capacity from 5 to 8000 gallons per minute. Pumps of over 600 g.p.m. are water and salt pumps. The discharge pressures are highest in the oil pumps except for water circulating pumps on the steam generator. Horsepower ratings of the 31 motors range from 1 to 250 HP.

The instrumentation of the Houdry unit is extensive but not of great complication although the successful operation of the unit no doubt depends to a great extent upon the present stage of development of instrumentation. A number of the leading manufacturers are represented among the instruments employed on the unit. The instruments include 13 flow controllers, the same number of liquid level controllers, four recording temperature controllers, three pressure controllers, and two recording pressure controllers. One of these holds back pressure on the crude furnace by means of a diaphragm control valve which is featured by a manual operated, coke breaking unit.

There are eight recording flow-meters and two recording thermometers. Seven 6-point fast-action potentiometers record catalyst temperature in the cases and seven 4-point potentiometers record the temperatures of the salt and vapor in and out of the cases. Four other instruments record temperatures at important points. A 24-point and a 36-point indicating pyrometer give miscellaneous temperatures as required.

Differences in No. 2 Unit

A number of improvements and refinements have been made on the No. 2 Houdry unit. This unit will have three cases operating simultaneously instead of two as in No. 1 unit and instead of being replaced on oil stream all at once, only one will be removed and another replaced at 31/3 minute intervals. This will smooth out the utility load on the system. Also the pressure of the oil stream in the cases has been reduced from 30 to 10 pounds operating pressure.

The salt system has been redesigned for more flexibility and salt pumps of improved design have been installed. The cycle timer has also been improved in design, being installed in a dust-proof case and have air-gaps between the contact segments instead of mica. The general design of the supporting structure is in better balance since the catalyst cases have been arranged with half on each side of the structure instead of being all on one side. Numerous other less significant refinements which would be natural after experience with any new process have also been incorporated.

Houdry Catalytic Cracking Patents Issued Since Nov. 15, 1938*

Patent Number	Date of Issue	Inventor	Invention
2 136 382	11/15/38	E. J. Houdry	Catalytic desulfurizing and stabilization.
2 141 185	12/27/38	E. J. Houdry	3-stage catalytic reforming and fractionation of naphtha at 875-925° F.
2 143 009	1/10/39	E. J. Houdry	Catalyst reaction case.
2 145 877	2/ 7/39	E. J. Houdry	Catalyst reaction case.
2 146 718	2/14/39	G. R. Bond, Jr.	"Preparation of contact masses from gels and the like." Synthetic catalyst molded at 800 psi. which shrinks but slightly.
2 149 299	3/ 7/39	R. C. Lassiat	"Fluid distribution." Flow passage reversed in double or concentric conduit assembly. Outside tube perforated.
2 149 300	3/ 7/39	R. C. Lassiat	Distribution and temperature control in catalyst case. Reverse flow assembly.
2 150 923	3/21/39	E. J. Houdry	Method of flow through catalyst case.
2 150 924	3/21/39	E. J. Houdry	Catalyst regeneration cycle and purging.
2 150 930	3/21/39	R. C. Lassiat	Temperature regulation and method of flow through catalyst.
2 154 434	4/18/39	G. R. Bond, Jr.	Catalytic refining and decolorizing lubricating oil. Catalyst case design and flow method. Use of hydrocarbon between heptane and propane for removal of color bodies.
2 161 676	6/ 6/39	E. J. Houdry	"Catalytic operation." Reaction and regeneration cycle timing. Temperature changes.
2 161 677	6/ 6/39	E. J. Houdry	Catalyst case for transforming heavier hydrocarbons to gasoline. Volume and time of flow.
2 163 599	6/27/39	E. J. Houdry	"Control of heat exchange" in catalyst case. Means for circulating heat exchange fluid and design of catalyst case circulation system.
2 166 176	7/18/39	A. G. Peterkin	"Preparation of Charge" from a residual fraction of too high boiling point for vaporization by heat alone. Vaporizing liquid and mild cracking used.
2 166 177	7/18/39	A. G. Peterkin	
2 167 655	8/ 1/39	E. J. Houdry	Process of regeneration by feeding gases containing oxygen and combustion products under pressure through the catalyst. Heat used for power generation.
2 167 698	8/ 1/39	E. J. Houdry	Same as above. Heat energy in combustion products used for compressing fresh oxidizing gas to catalyst cases.

*Patents issued before Nov. 15, 1938 were listed in a paper presented at the meeting of the American Petroleum Institute Nov. 14-18, 1938, and published in NATIONAL PETROLEUM NEWS Nov. 30, 1938, p. R-580. All patents in this list are assigned to the Houdry Process Corp.

Acknowledgments

This article was prepared with the co-operation of the Technical Department of Magnolia Petroleum Co. with the supervision of P. L. Smith and the direct assistance of C. P. Baker. Valuable suggestions and criticisms were made by the refinery executive staff headed by J. W. Newton; by Wilber F. Burt, Socony-Vacuum Oil Co., New York; and by T. B. Prickett, Houdry Process Corp., Philadelphia.

Capacities of Houdry Units in Operation, Under Construction or in Design

Company	Location	Type	Charging Stock	Capacity, Bbls./Day Charge Stock	Capacity, Bbls./Day Case Charge
Socony-Vacuum Oil Co.	Paulsboro, N. J.	Cracking	Gas Oil,	2,000	2,000
Sun Oil Co.	Marcus Hook, Pa.	Cracking	Reduced Crude	15,000	12,000
Raff. di Napoli	Naples, Italy	Cracking-V. Treating	Gas Oil	2,600	2,600
Magnolia Petroleum Co.	Beaumont, Texas	Cracking	Crude	16,700	15,000
Sun Oil Co.	Marcus Hook, Pa.	Cracking-V. Treating	Crude	28,000	19,000
Socony-Vacuum Oil Co.	Detroit, Mich.	Cracking	Crude	19,400	10,500
Socony-Vacuum Oil Co.	Brooklyn, N. Y.	Cracking	Mixed	12,000	10,000
Sun Oil Co.	Toledo, Ohio	Cracking-V. Treating	Crude	28,000	19,000
Magnolia Pet. Co. No 2	Beaumont, Texas	Cracking	Mixed	17,800	15,000
Socony-Vacuum Oil Co.	Buffalo, N. Y.	Cracking	Crude—Gas Oil	16,000	10,000
Socony-Vacuum Oil Co.	East St. Louis, Ill.	Cracking	Crude	18,400	10,000
Socony-Vacuum Oil Co.	Augusta, Kansas	Cracking	Crude	23,500	10,000
Socony-Vacuum Oil Co.	Paulsboro, N. J.	Cracking	Crude—Gas Oil	12,700	10,000
Raff. Vacuum Oil, SAF	Gravenchon, France	Cracking	Gas Oil	2,200	2,200
			Naphtha	3,200	3,200
Raff. de Berre	Berre l'Etang, France	Cracking	Gas Oil	4,535	4,535
			Reduced Crude	6,375	5,500

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Synthetic Oils from Unsaturated Hydrocarbons*

By Ewa Neyman-Pilatowa

(Paper delivered at the 10th Petroleum Congress in Lwow) PRZEMYSL NAFTOWY, Vol. 13, pages 381-2, 1938. Translated from the Polish by J. G. Tolpin of Process Management Co.

ABSTRACT

Using aluminum chloride as a catalyst olefins have been polymerized to produce lubricating oils. Experiments included almost pure chemical compounds, a special technical product from which C_5 olefins were obtained, and cracked gasoline. Promising results are indicated for polymerization of C_3 to C_5 pure or possibly branched olefins for the production of a uniform high molecular product of high viscosity, high V.I., and high resistance to oxidation.

DURING the last two years investigations were carried out in the Petroleum Technology Laboratory of the Lwow Polytechnical School on the course of polymerization of light olefins to lubricating oils. The results given in the present paper were obtained by T. Batkowski, A. Rozdzenski and W. Laskowski as a part of their thesis work.

It is known that the reactions of polymerization of olefins belong to the class of exothermic reactions and consequently proceed easier at lower temperatures than at higher. To facilitate these reactions at low temperature it is essential to apply proper catalysts. It is known that the best catalysts for polymerization reactions resulting in formation of products possessing properties close to those of lubricating oils are boron fluoride and anhydrous aluminum chloride. In the experiments carried out in this laboratory aluminum chloride procured from Kahlbaum and Fraenkel Landau was used as a catalyst as well as aluminum chloride prepared in the laboratory from aluminum dust which was found to be more active than the purchased because it was freshly prepared.

The first experiments of polymerization were carried out with an almost pure chemical compound, namely, isoamylene obtained by dehydration of isoamyl alcohol over aluminum oxide at 350-400 degrees Cent. Isoamylene boiling at 21 degrees Cent. was treated in pentane solution with about 25 per cent aluminum chloride under vigorous stirring at 5-10 degrees Cent. After the completion of the reaction and decomposition of the addition products of olefins with aluminum chloride with the aid of water the hydrocarbon layer was fractionated and about 50 per cent oil obtained boiling above 123 degrees at 10 mm. mercury. This oil was formed by addition of amylene molecules and is naturally an unsaturated product; consequently, it cannot be used as a substitute for lubricating oils. Olefins can be easily hydrogenated in the presence of nickel under pressure or they can be removed by refining with sulfuric acid. In the first line of the Table 1, the properties of the oil are given obtained from amylene after complete hydrogenation of the olefin compounds as well as aromatics. The low specific gravity and the high molecular weight, high viscosity and polarity amounting to 1.91 (which roughly corresponds to a viscosity index of about 100 or higher), indicate the highly paraffinic character of the obtained oil.

The content of cyclic compounds determined by the H. I. Waterman method amounts to only 6 per cent which confirms the above opinion. This oil was subjected to oxidation by the method of the British Air Ministry. It was found that within 12 hours not even a trace of asphalt was formed. An unfavorable phenomenon was observed during the oxidation consisting in the very pronounced rise of viscosity (up to 27.5 degrees Engler at 100 degrees Cent.) which was caused, however, not by formation of high-molecular substances but by evaporation of a large amount of light oil fractions. This fact indicates at the same time that the obtained polymer contains compounds of considerably higher molecular weight than the average molecular weight 620 indicated in the table.

In the second part of the work an attempt was made to use as a starting material a purely technical product, namely isoamylene obtained from amyl alcohol isolated by fractionation of the pentane fraction (31-38 degrees Cent.) of petroleum ether. It was chlorinated in the light, a 46 per cent yield of monochlorides being obtained from 2 chlorinations; from this product hydrogen chloride was eliminated by passing it over a layer of lime at 220-260 degrees Cent. A mixture of 5-carbon atom olefins of unknown structure was obtained in this way. It was polymerized in the presence of aluminum chloride under the conditions identical with those used for the pure isoamylene. After the light polymers were distilled off and the product refined with sulfuric acid, a 27 per cent yield of oil was obtained, the properties of which are given in Table 1, line 2. Its viscosity indicates that this oil is much lighter than the previous which indicates that the polymerization was not far-reaching in this case. Unlike the first case we had to do here with predominantly normal hydrocarbons (unbranched) which polymerize, according to H. I. Waterman, with more difficulty than branched hydrocarbons and possess a higher tendency toward cyclization which is shown by the presence of 15 per cent

*This translation has been submitted by the Petroleum Division of the American Chemical Society. The Petroleum Division, however, assumes no responsibility for the facts and opinions presented in this paper, nor does it necessarily endorse statements made therein.

Table 1

	Yield	d (20/4)	Aniline point, °C.	Molecular weight	Cyclic compounds per cent	V/50°	V/100°	Polarity
1	50	0.8513	147	620	6	251°E	10.6°E	1.91
2	27	0.8477	116.5	425	15	18.5	2.04	6.8
3	46	0.8543	95	327	27	1.98	1.25	1.89

cyclic compounds. The unfavorable viscosity-temperature curve (V.I. 14) and the bad lubricating properties are probably caused by the very structure of the hydrocarbon molecules.

As a third type of raw material for polymerization cracked gasoline was used in view of its content of olefins. This gasoline was produced in a Cross cracking unit and was kindly supplied to the writers by the firm "Galicja". The highest olefin content (18 per cent) (determined by means of sulfuric acid) was found in the lowest fractions of the gasoline. In the fraction boiling above 164 degrees Cent. it was the lowest (7 per cent). The average content of unsaturated amounted to 12 per cent. A few experiments carried out with this gasoline are reported in Table 2.

Table 2

	Fraction	Per cent Olefin	Temperature polymerization	Polymerization period,hrs.	n (20/D)	d (20/4)
I	80-140	13	20	15	1.4882	0.882
II	80-140	13	5	18	1.4882	0.881
III	30-185	12	20	15	1.4823	0.865
IV	30-70	17	20	15	1.4681	0.836

Polymers boiling over 96°C at 8 mm. pressure

After the polymerization reaction which was carried out for 15 hours at room temperature the gasoline was distilled off and this still contained 5-7 per cent olefins. The yield of polymers boiling over 96 degrees Cent. at 8 mm. mercury amounted to about 77 per cent on the olefins contained in the raw gasoline. From all fractions the low boiling portions up to 150 degrees and 1 mm. were distilled off and an oil was obtained amounting to 46 per cent; this was hydrogenated to remove the unsaturated hydrocarbons. The properties of this oil are given in Table 1. It is seen that this is a very light oil, containing a high amount of cyclic compounds, but characterized by a low viscosity curve (the viscosity index is about 100).

Comparing the polymerization products obtained from the three different raw materials it is to be concluded that with regard to the yields as well as the physical properties of the oils polymerization of pure unsaturated hydrocarbons produces the most satisfactory results. It is also of significance that in polymerization of isoamylene very little low-molecular products were obtained. Recalculating the temperature up to which the light products were distilled off to the temperature under a pressure of 760 mm. we obtain for the above-mentioned three oils the values of 258, 377 and 348 degrees, respectively. After the fractions boiling up to 258 degrees are distilled off from the first oil it possesses a molecular weight of 620 and an incomparably higher viscosity in comparison with the two other oils. The polymerization, consequently, proceeded at once very far without formation of intermediate fractions (of the character of kerosine and gas oil) which characterized the two other experiments.

If the practical use of this process is considered for production of high quality oils which could serve as additions for raising the viscosity index of lubricating oils the following conclusions can be drawn from the experiments conducted. The polymerization of a mixture of olefins is justified by the cheaper raw product. However, it produces low yields of a non-uniform product of a relatively low molecular weight and the results of the second experiment also indicate an unfavorable viscosity index. The polymerization of pure and possibly branched olefins with from 3 to 6 carbon atoms, on the other hand, is promising since it gives a very uniform high-molecular product of high viscosity, high viscosity index and high resistance to oxidation.

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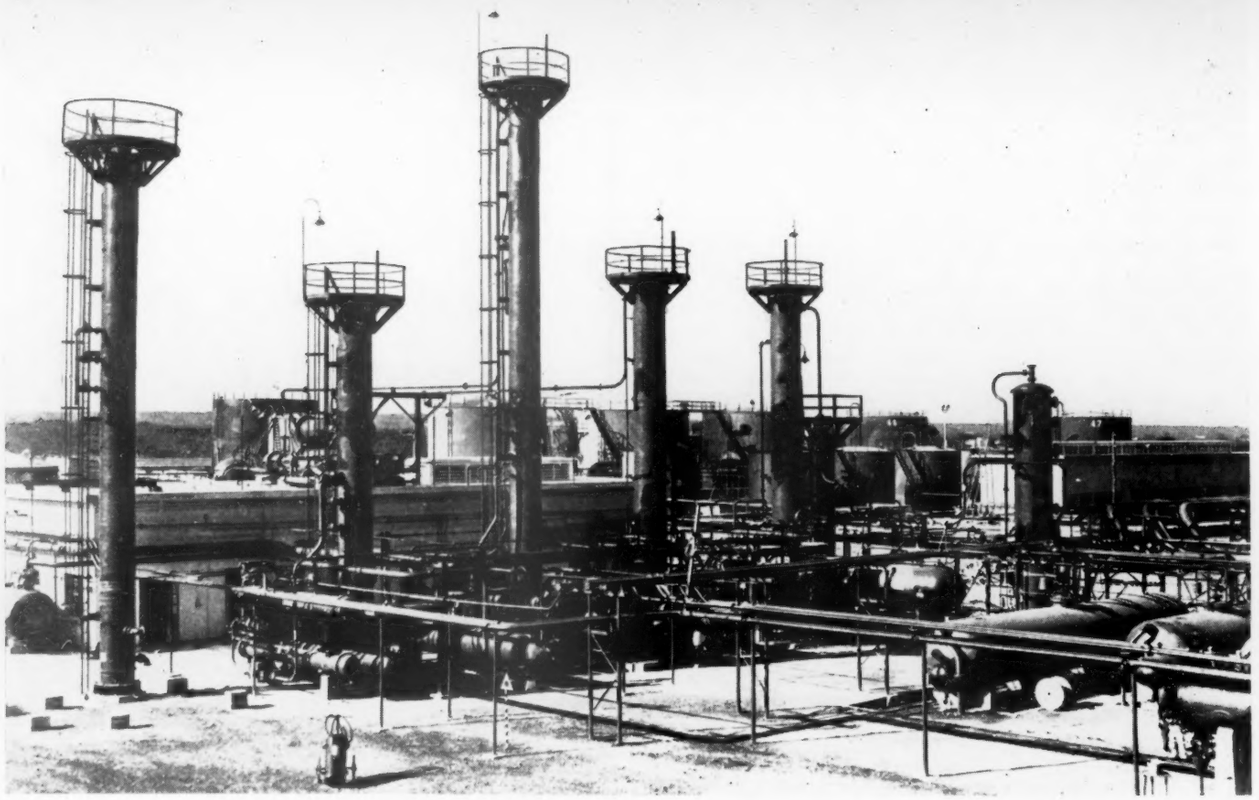

General view of vapor recovery plant showing from left to right:—hydro-stabilizer, hydro-fractionator, butane stabilizer, combination tower, absorber and caustic soda scrubber. Behind the towers are the pump-house and finished product tanks. All of the towers, tankage and other equipment is camouflaged as a protection against air attack

710.1

Feature Multifold Operations In Simple Refining Equipment

By Duff Smith*

ABSTRACT

Two identical and complete refineries producing gasoline from low grade crude demonstrate great flexibility of operation of vapor recovery and stabilization plant by meeting widely varying demands under critical conditions. Selection of equipment was based primarily upon economy of operation and minimum consumption of oil in the supply of utilities for processing.

The refineries were built for a European government at a cost of $25,000,000 and include hydrogenation, cracking, distillation, chemical treating and gas processing. A feature of the gas plants and stabilizing equipment is the multifold operations using relatively simple equipment. A great variety of duties has been demanded of the vapor recovery section.

Among the features of the operation are the absorber tower for removing butane from gases used as charge stock for the catalytic production of hydrogen. The absorption cycle is accomplished at 2800 psi. A "combination" tower featuring a variety of functions supplies three liquid streams and one gas stream. Pumps are all motor-driven centrifugal with steam-turbine driven units as spares.

A PROMINENT European government was recently confronted with the problem of producing high grade gasoline from low grade crude oil. An extensive study of equipment and processes was made and it was decided to build two identical, complete refineries at an investment cost of approximately twenty-five million dollars, including hydrogenation, cracking, distillation, chemical treating and gas processing.

Due to the expense of importing all of the oil to be processed, and the desire to obtain the maximum overall yield of products, selection of the equipment for the refineries was based primarily on economy of operation and minimum consumption of oil in the supply of utilities for processing. A considerable portion of the equipment was designed and installed by Foster Wheeler engineers, including primary distillation with prestabilization of the crude, naphtha redistillation, chemical treating, vapor recovery and stabilization.

The gas plants and stabilizing equipment incorporate many of the latest features of design and are of interest because of the multifold operations using relatively simple equipment. In Fig. 1 is shown a schematic flow diagram of the vapor recovery and stabilizing unit in one of the refineries. The unit in the other refinery is practically identical.

Referring to Fig. 1, the gas charge to the vapor recovery unit consists of a mixture of: 1. Gases from crack-

*Design Engineer—Foster Wheeler Corporation.

ing units; 2. Gases from prestabilizer at the primary distillation unit. 3. Gases from let-down drums at hydrogenation units. 4. Recycled gases from within the gas plant itself.

These gases contain only a small quantity of H_2S and are treated in the soda tower with dilute caustic soda solution to remove the last traces of hydrogen sulfide. From the soda tower the washed gases pass directly into the absorber column where an efficient counterflow washing with the absorbing oil effects an extraction of 95 per cent of the butane. The absorber tower and all of the other columns in the unit are fitted with cast-iron bubble trays.

On leaving the absorber the dry denuded gases are used as charge stock for the production of hydrogen. It is important that these gases should be consistently free of butane and heavier hydrocarbons which are detrimental to the catalyst used in hydrogen production. Since the quantity of gases fed to the absorber varies from time to time, a flow-ratio recording controller is used on the lean oil feed. This instrument regulates the oil feed in proportion to the gas flow and thereby insures a constant ratio of oil to gas. By this method the heavy hydrocarbons are always absorbed from the entering gases in the same proportion.

The rich oil is pumped from the bottom of the absorber through heat exchangers into the "combination" tower, so called because of the variety of functions that it performs. This rich oil charge stream is joined by the raw pressure-distillate from the cracking units and also by rich oil coming from the hydrogenation plant. (This latter is an absorption oil used for washing the recycled hydrogen free of hydrocarbons before it is recompressed. The absorption is accomplished at a pressure of about 2300 psi.) From the combination tower, three liquid streams and one gas stream are taken, namely, (1) Bottoms from reboiler, to a lean-oil, pressure storage drum. (2) Stabilized pressure-distillate side cut, to storage, (3) Light gasoline overhead, through the reflux accumulator to the stabilizer feed tank. (4) Wet gas from reflux accumulator, to the absorber tower

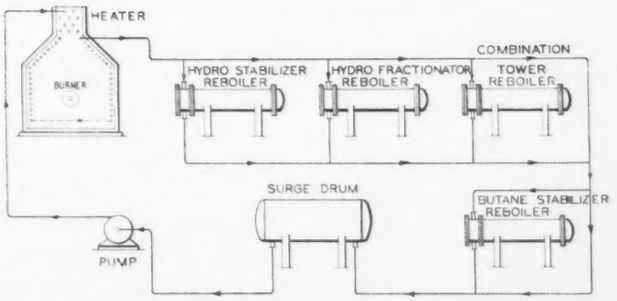

Figure 2. General arrangement of heating system showing how hot gas oil is circulated through the four reboilers from a common heater

at ("A"). This arrangement affords maximum economy of operation by saving in the number of towers required for all of these services.

The heavy ends of the pressure distillate comprise the lean oil, used for absorption in the system, and has the boiling range of a heavy naphtha cut. This fraction makes an excellent absorption medium for the high butane extraction that is required in the absorber. The stabilized pressure distillate is withdrawn from the combination tower below the feed tray as a liquid sidestream and the absorption oil continues down the tower to the reboiler. Here, the light fractions are vaporized in order to give the lean oil a high initial boiling point. From the reboiler, the oil flows through heat exchangers and coolers to the lean oil storage tank which is maintained at absorber column pressure. A low-head pump recycles part of the oil from the receiver to the absorber and a stream is also withdrawn for use in the high-pressure absorption system at the hydrogenation plant. Both streams are returned to the combination tower as rich oil, along with the raw

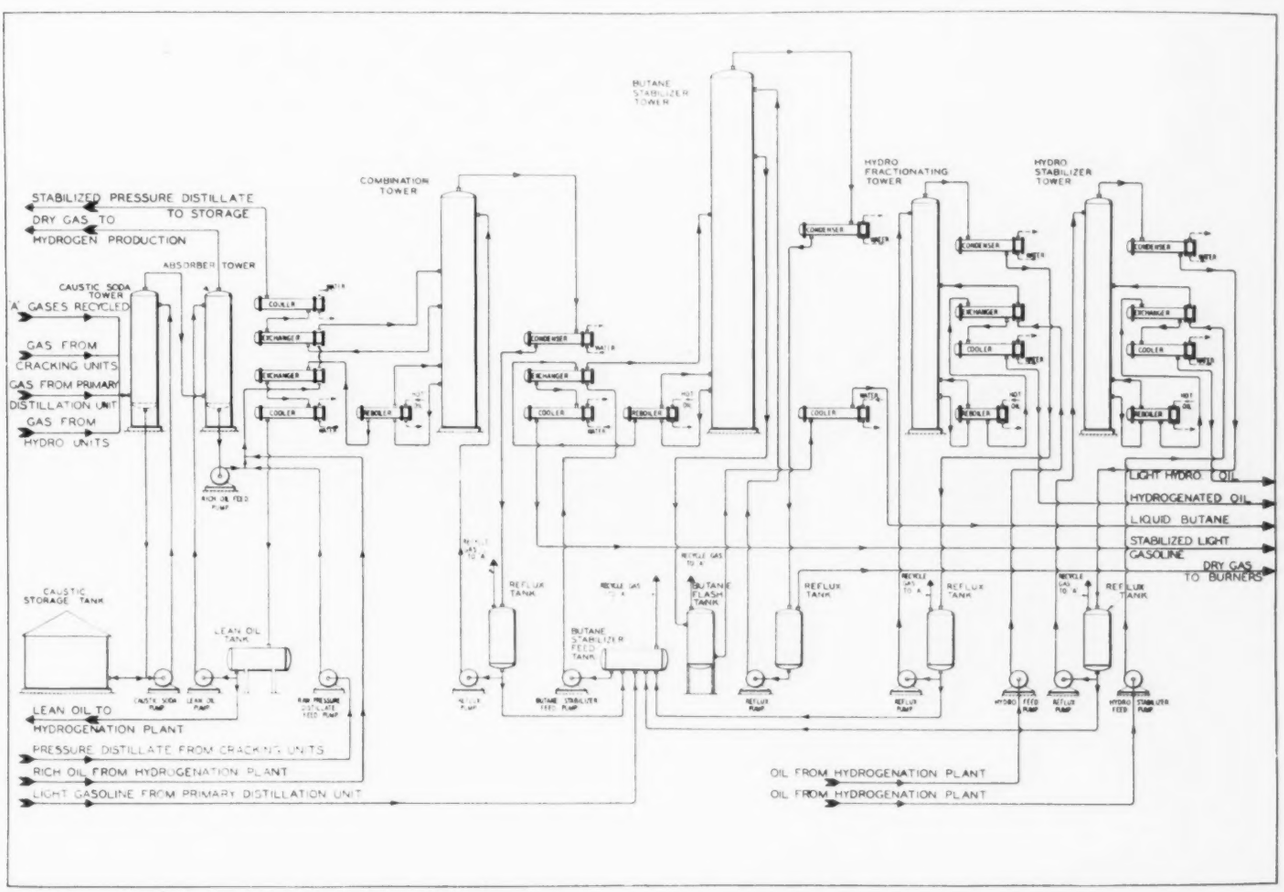

Figure 1. Flow diagram showing the various charge stocks and products handled by the vapor recovery and stabilization unit

pressure distillate stream. In this operating cycle, part of the lean oil is continuously withdrawn with the stabilized pressure distillate sidestream and make-up is furnished by the raw pressure distillate charge so that the quality of the lean oil is always kept fresh. This eliminates the necessity for any cleaning or changing of the lean oil or supplying make-up from any outside source.

A further advantage of this arrangement is to conserve the pressure on the absorption oil. In this installation, the absorption tower and lean oil storage drum are maintained at 85 lb. gage pressure and the combination tower is maintained at 100 lb. gage. The pressure differential in the lean oil recirculation cycle is never over 15 pounds and hence absorption-oil pumping costs are considerably lower than those generally experienced in absorption plants.

The butane-stabilizer feed tank accumulates charge stocks from various sources, including: (1) Light naphtha from the combination tower overhead, (2) Light gasoline from the pre-stabilizer of the primary distillation unit, (3) Light naphtha from hydro-fractionating tower, (4) Light naphtha from hydro-stabilizer tower. This mixture is then charged into the butane stabilizer. Three streams are taken from this tower: (1) Gas from reflux accumulator (this is a heavy dry gas consisting essentially of propane and is used in the gas fuel system). (2) Stabilized bottoms from reboiler to storage for use as a light gasoline blending medium. (3) Sidestream to butane flash tank. After flashing off the propane as a recycle to the absorber at "A", a relatively pure butane stream is taken from the flash tank through a cooler to a sphere for storage.

Precise control of the products from the butane stabilizer is achieved by the use of two pressure controls, one on the gross overhead line to the condenser, which maintains a constant pressure at all times in the tower, and one in the dry gas line from the reflux accumulator. The latter maintains a suitable pressure in the condenser and reflux accumulator in order to condense the reflux at the cooling water temperature. The level of reflux in the accumulator is held constant by an automatic valve in the water supply to the condensers. By the use of such a dual pressure-control system, the possibility of pressure fluctuations in the tower itself is reduced to a minimum and uniformity of the products is thereby insured.

The hydro-fractionating tower and the hydro-stabilizer tower are designed to handle the hydrogenated products apart from the rest of the system so that the aviation gasoline and other specialized hydrogenated products will not be contaminated with cracked naphthas. These two units are of standard design, as shown in Fig. 1, and bring about economy of operation by virtue of their location within the gas plant. The gases discharged from the reflux drums are recycled to the absorber at ("A"), the light naphtha overhead streams are led to the butane stabilizer feed tank, and the reboilers are heated by oil in the common recirculating system as shown in Fig. 2.

This heating oil circulating system utilizes a single furnace to heat gas oil that is circulated in a closed system to furnish a source of heat to the four reboilers. The furnace is fired with cracked residual fuel oil having a specific gravity of 1.0. By designing the furnace with a relatively large convection surface the loss of heat to the stack is kept low. Economy of operation is further facilitated by using once-used hot oil in the butane-stabilizer reboiler after the oil has given up part of its heat in the other three reboilers. This is made possible by the fact that the butane stabilizer operates at a lower temperature level than the other columns. In order to eliminate any possibility of fire hazard, the furnace is located at a considerable distance from the vapor recovery plant.

All pumps in the vapor recovery plant are motor-driven centrifugals, with steam-turbine driven units as spares. In many cases the spare pump is common to two motor-driven pumps. All pumps are located in a single pump house which is divided into hot oil and cold oil pump rooms. Another room in this building houses the instruments and controls.

Since the entire refinery was new and all of the component processes and equipment were started up at about the same time, in the latter part of 1938, a great variety of duties were thrust upon the vapor recovery section during the refinery's adjustment period. This unit demonstrated its great flexibility by meeting these widely varying demands, under critical conditions. No difficulties in operation have been experienced and the performance of the vapor recovery unit has been highly praised by refinery officials.

New Patents

Compiled by R. E. Burnham, patent and trade-mark attorney, 511 Eleventh Street, NW, Washington, D. C., from whom copies may be obtained at rate of 25c each. State number of patent and name of inventor when ordering.

MISCELLANEOUS

Parasiticidal spray oil composition—Arthur L. Lyman, Berkeley, Calif., assignor to Standard Oil Co. (Calif.) Filed Dec. 19, 1936. No. 2,166,500.

Emulsions and process of producing—Ulric B. Bray, Palos Verdes Estates, and Lawton B. Beckwith, San Pedro, Calif., assignors to Union Oil Co. (Calif.) Filed Apr. 27, 1936. No. 2,166,541.

Process of making nitrite esters of polyhydroxy aliphatic compounds—Clyve Allen, Berkeley, Calif., assignor to Shell Development Co. Filed Sept. 17, 1937. No. 2,166,698.

★ ★ ★

August 1, 1939

REFINING

Treatment of hydrocarbon gases—Aristid V. Grosse, Chicago, Ill., assignor to Universal Oil Products Co. Filed Nov. 11, 1935. No. 2,167,650.

Promotion of chemical reactions—Eugene J. Houdry, Rosemont, and Richard S. Vose, Ridley Park, Pa., assignors to Houdry Process Corp. Filed Jan. 13, 1936. No. 2,167,655.

Method for regenerating catalytic masses—Richard S. Vose, Ridley Park, Pa., assignor to Houdry Process Corp. Filed Jan. 17, 1936. No. 2,167,698.

Solvent extraction and recovery—Eugene R. Smoley, New York, N. Y., assignor to Lummus Co. Filed Oct. 4, 1935. No. 2,167,730.

Purification of relatively water insoluble derivatives of fatty acids—Sumner H. McAllister, Lafayette, and George F. Johnson, San Francisco, Calif., assignors to Shell Development Co. Filed June 14, 1937. No. 2,167,931.

Process for separation of wax from oil—Ulric B. Bray, Palos Verdes Estates, Calif., assignor to Union Oil Co. (Calif.) Filed Dec. 18, 1933. No. 2,167,970.

Cracking hydrocarbon oil—Victor Stapleton, New York, N. Y., assignor to Texas Co. Filed Oct. 25, 1935. No. 2,168,074.

Process of removing acid components from hydrocarbon distillates—David L. Yabroff, Berkeley, Calif., assignor to Shell Development Co. Filed Feb. 7, 1939. No. 2,168,078.

Oil dewaxing—August H. Schutte, Westfield, N. J., 5 patents, first filed February 25, 1938, next three filed May 19, 1938, fifth filed Sept. 29, 1938. Nos. 2,168,140, 2,168,141, 2,168,142, 2,168,143, 2,168,306.

Process for desulphurization of alkyl phenols—Martin de Simo, Piedmont, and Aloysius P. Brady, Oakland, Calif., assignors to Shell Development Co. Filed June 6, 1938. No. 2,168,256.

Method of producing light hydrocarbons—Robert M. Isham, Okmulgee, Okla. Filed Dec. 14, 1932. No. 2,168,261.

Process for polymerization of unsaturated compounds—Johannes N. J. Perquin, Rotterdam, and Hendrikus Stokman, Amsterdam, Netherlands, assignors to Shell Development Co. Filed Sept. 21, 1937. No. 2,168,271.

MISCELLANEOUS

Process for thickening unsaturated oils—Roger W. Richardson, Baton Rouge, La., assignor to Standard Oil Development Co. Filed Jan. 28, 1936. No. 2,167,726.

Lubricant—Anthony F. Benning, Penns Grove, N. J., assignor to E. I. du Pont de Nemours & Co. Filed May 7, 1936. No. 2,167,867.

Halo-substitution of ethylene—Herbert P. A. Groll and George Herne, Berkeley, and James Burgin and Donald S. La France, Oakland, Calif., assignors to Shell Development Co. Filed Mar. 4, 1938. No. 2,167,927.

Gear lubricant—Gerald M. Fisher, Los Angeles, Calif., assignor to Socony-Vacuum Oil Co. Filed Sept. 4, 1937. No. 2,168,258.

Extreme pressure lubricant—Edwin N. Klemgard and Vernon L. Rocketts, Martinez, Calif., assignors to Shell Development Co. Filed May 25, 1936. No. 2,168,262.

★ ★ ★

July 25, 1939

REFINING

Converting hydrocarbon oils—Frederick W. Sullivan, Jr., Hammond, Ind., assignor to Standard Oil Co. (Ind.) Filed Feb. 11, 1935. No. 2,166,933.

Process for esterifying polymerized olefines—Peter J. Gaylor, New York, N. Y., and Raphael Rosen, Elizabeth, N. J., assignors to Standard Oil Development Co. Filed Sept. 18, 1937. No. 2,166,981.

Production of hydrocarbons—Mathias Pier, Wilhelm Michael, and Wolfgang Jaeckh, Germany, assignors to I. G. Farbenindustrie. Filed Dec. 16, 1936. No. 2,167,004.

Fractionating column—Salvatore A. Guerrieri, Mount Vernon, N. Y., assignor to Lummus Co. Filed Aug. 31, 1935. No. 2,167,025.

Method of distilling—Ulysses S. Jenkins, St. Louis, Mo., assignor to Jenkins Petroleum Process Co. Filed June 30, 1924. No. 2,167,211.

Process for breaking petroleum suspensions—Samuel K. Talley and Carlos L. Gutzeit, Houston, Tex., assignors to Shell Development Co. Filed Feb. 19, 1938. No. 2,167,327.

Hydrogenation of cyclic hydrocarbons — William J. Sweeney, Westfield, N. J., assignor to Standard-I. G. Co. Filed Apr. 28, 1937. No. 2,167,339.

Continuous propane dewaxing—Ernest W. Thiele, Chicago, Ill., assignor to Standard Oil Co. (Ind.) Filed Dec. 30, 1936. No. 2,167,340.

Processes for breaking petroleum emulsions—Melvin De Groote, University City, and Bernhard Keiser and Charles M. Blair, Jr., Webster Groves, Mo., assignors to Petrolite Corp. Filed May 9, 1938. Nos. 2,167,346, 2,167,347, 2,167,348, and 2,167,349.

Conversion of hydrocarbon oils—Jacob B. Heid, Chicago, Ill., assignor to Universal Oil Products Co. Filed Oct. 12, 1935. No. 2,167,507.

Treatment of hydrocarbon oils—Jean D. Seguy, Chicago, Ill., assignor to Universal Oil Products Co. Filed July 28, 1930. No. 2,167,531.

Treatment of hydrocarbon oils—Walter A. Schulze, Bartlesville, Okla., assignor to Phillips Petroleum Co. Filed Oct. 6, 1936. No. 2,167,602.

MISCELLANEOUS

Lubricant—Melvin A. Dietrich, Wilmington, Del., assignor to E. I. du Pont de Nemours & Co. Filed June 2, 1936. No. 2,167,064.

Process of manufacture of ketones and alcohols from olefins—Henri M. E. Guinot, Niort, France. Filed Mar. 24, 1937. No. 2,167,203.

Process of making a solid bituminous hydrocarbon product—Theodor W. Pfirrmann, Germany. Filed Oct. 25, 1935. No. 2,167,250.

Stabilized mineral oil—Elmer W. Cook, New York, N. Y., assignor to Tide Water Associated Oil Co. (Del.) Filed Dec. 4, 1936. No. 2,167,273.

Diesel fuel and method of improving same—George S. Crandall, Woodbury, Robert C. Moran, Wenenah, and Henry G. Berger, Woodbury, N. J., assignors to Socony-Vacuum Oil Co. Filed Dec. 9, 1936. No. 2,167,345.

Apparatus for manufacture of wax polishing compositions—Gus Kaufman, Beacon, N. Y., assignor to Texas Co. Filed Oct. 15, 1935. No. 2,167,438.

Sulphur cutting oil—Gus Kaufmann, Beacon, N. Y., assignor to Texas Co. Filed Dec. 18, 1937. No. 2,167,439.

Lubricant—Gus Kaufman, Beacon, N. Y., assignor to Texas Co. Filed July 25, 1936. No. 2,167,612.

Joins Missouri Mines Faculty

Dr. H. T. Mann, for the past 13 years in charge of petroleum engineering at Massachusetts Institute of Technology, Boston, has accepted a professorship of petroleum engineering at Missouri School of Mines and Metallurgy, University of Missouri, Rolla, Mo., starting Sept. 1.

Dr. Mann received his Bachelor's and Master's degree at the Missouri School of Mines and Metallurgy, later receiving the Doctor of Science degree at M. I. T. He is editor of the Petroleum Natural Gas and Bitumen section of the Annotated Bibliography of Economic Geology, and also the petroleum engineering editor of Webster's International Dictionary.

Earmarks Fund for Ph Research

A fund of $75,000 has been earmarked in the Bureau of Standards (Commerce Department) appropriation as passed by the Senate for development by the Bureau of a "pH" or acidity standard, described during hearings on the bill as vital to the oil industry as well as many others.

Dr. A. M. Buswell, University of Illinois professor who appeared before the Senate appropriations committee in behalf of the pH standards said oil refineries were particularly interested in their development, and in the testimony of Dr. S. F. Acree of the Bureau of Standards the subject of "Gasoline and pH" was taken up specifically.

Acre said that pitting and corrosion of gasoline tanks in airplane wings might cause a tremendous catastrophe.

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Activities OF EQUIPMENT MANUFACTURERS

pH CONTROL—Bulletin 536, giving information on pH instruments supplied by The Bristol Co., Waterbury, Conn., has just been issued. With the equipment described, hydrogen ion concentration may be placed under the same close control as that of other process variables, it is said.

* * *

METAL CLEANING—A solvent said to combine soap and water detergency with the solvent performance of benzines is announced by A. F. Curran, The Curran Corp., Malden, Mass. Small metal parts dipped in the solvent assume a scoured appearance without etching, marking or loss of weight, it is said. The solvent is also said to be a rust preventative.

* * *

GAS MASKS—A bulletin on the "Care and Use of Gas Masks" is being distributed by the Davis Emergency Equipment Co., 55 Van Dam street, New York.

* * *

MIXING EQUIPMENT—A newly redesigned "Lightnin" side entering Vee-belt mixer of Mixing Equipment Co. is now said to be a stronger, lighter weight unit as the result of substitution of fabrication for castings. In the redesigned model the motor is mounted on a pivoted steel platform, actuated by a riser bolt, permitting maximum adjustment for belt tension or replacement of sealed outboard bearing. The Vee-belt unit is recommended where quietness is desired or where interchangeability of motors is important.

* * *

WELDING BOOK—Arc Welding in Design, Manufacture and Construction, $1.50 postpaid in U. S., $2.00 foreign, is a compilation of 109 prize winning papers submitted in the recent contest sponsored by The James F. Lincoln Arc Welding Foundation. The book contains 1408 pages 695 numbered illustrations. It is divided into 10 general sections dealing with welding practice in various industries. The book is offered for sale by the foundation at P. O. Box 5728, Cleveland, O.

* * *

PHENOL PLANT—Announcement has been made by The Barrett Co., a subsidiary of Allied Chemical & Dye Corp., that it will immediately construct a new unit at its Frankford, Pa., plant for production of synthetic phenol. Barrett has been a supplier of phenol to the chemical industry for over 60 years.

* * *

The International Nickel Co., 67 Wall St., New York, announces a revised hardness conversion table for nickel alloy steels imprinted on a pocket-size celluloid card.

* * *

MORRIS E. LEEDS, founder and president of Leeds & Northrup Co., is assuming the position of chairman of the board of directors and Charles S. Redding, vice president in charge of research and engineering, becomes president in an expansion of the company's executive set-up effective July 10.

* * *

ALLOY STEEL—The development of Croloy 7, a new alloy steel for high-temperature and high-pressure service in tubular form is announced by The Babcock & Wilcox Tube Co., Beaver Falls, Pa. It is intermediate in properties between the company's 5% and 9% chromium alloys. The nominal percentage analysis is: 7% chromium, 0.15% max. carbon, 0.45-0.65% molybdenum, and 1.00 max. silicon.

* * *

CONDENSER TUBES—A new patented alloy, Chase "Antimonial Admiralty" is announced in a booklet just released by Chase Brass & Copper Co., Waterbury, Conn. This alloy was developed especially for oil refinery heat exchanger and condenser tubes. It is said to combine the advantages of plain Admiralty and Red Brass, and to resist dezincification, sulfur corrosion, and intercrystalline corrosion.

* * *

The Cooper-Bessemer Corp., manufacturer of gas and diesel engines and compressor units has opened a sales office in Corpus Christi. Earl P. Martin, formerly with Pittsburgh Equitable Meter and Merco-Nordstrom Valve companies in this territory, is in charge of the new office.

* * *

Lubri-Zol Sales Transfers—J. H. Baird has been transferred to Kansas City as manager of the Mississippi Valley territory for the Lubri-Zol Sales Co. His office will be at Park Lane, 4600 Mill Creek Parkway, Kansas City, Mo.

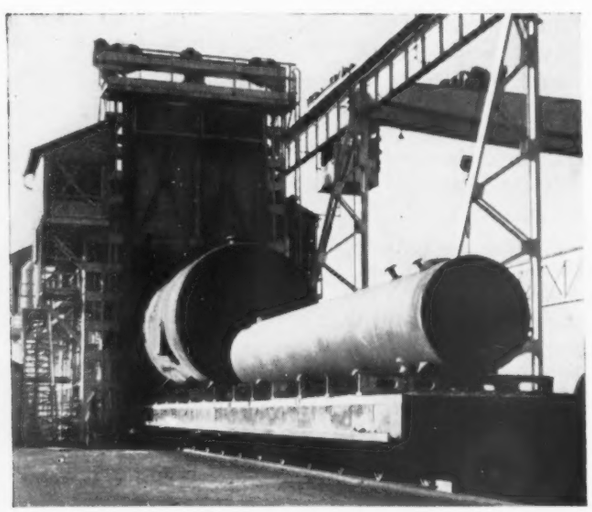
G. N. Gascoigne, a member of The Lubri-Zol Corp.'s sales staff for several years, has been appointed managing director of the English subsidiary, Anglamol, Ltd., with headquarters at 82 George St., Portman Sq., W.1—London. Mr. Gascoigne sailed recently from Boston with his family, and will take immediate charge of the company's operations in the British Isles.

* * *

NEW BREATHER ROOF—Conservation of saturated vapors in storage tanks, thus eliminating losses of products, is performed by its new breather roof, according to an announcement by Graver Tank & Mfg. Co., East Chicago, Ind. The new roof has sufficient capacity to stop breathing and evaporation losses; is self draining in normal or expanded positions and is noiseless in operation, the company claims.

Salt Storage Tank for Houdry Process

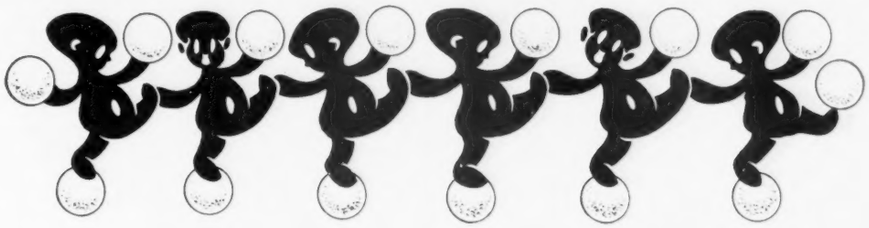
The larger cylinder in this photograph, the one just entering the stress-relieving furnace at Chicago Bridge & Iron works, is a 12 x 30-foot salt storage tank destined for installation in a Houdry catalytic cracking unit at Chaison, Texas. The 8 x 43-foot tower in front is a fractionator for Atlantic Refining Co.



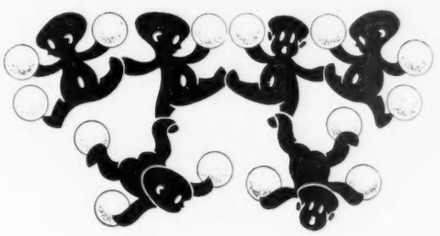
Gasoline reform school

Reforming means two things—rearranging and making better—Dubbs reforming does both

Here's hexane—a bad knocker found in straight-run gasoline The tarbabies are carbon atoms, the white balls hydrogen atoms



Reforming rearranges the atoms like this, making iso-hexane here



or benzol here—

or both—and similar anti-knock substances

Reforming converts the molecules from their bad habit of knocking—applies their energy more to work and less to noise

Send your straight-run gasoline to Dubbs reform school

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

a profitable basis, but were being allowed to just drift down hill. Fortunately for the oil men the drift did not happen to be as fast as the decline in costs and the expansion of the market, which all worked for lower costs per gallon, on a dollar of investment and expense.

During the period of nearly 30 years since the dissolution decree, the Standard companies struggled hard to hold, not only a dominating position in the oil industry, but a profitable one. They continued to be looked upon as the "market leaders", as they are today, and as the lowest cost operators, who, by reason of all their wealth, could not be beaten.

But the Standard companies have been slipping each year from their old dominating position. In 1912 they were commanding 85% of the kerosine and other oil business of the country, but today, after 27 years, they are doing according to the best of estimates, only about 20% of the business or even less, whereas at retail, due to the "Iowa Plan" they are doing only an infinitesimal amount.

In all these 27 years the Standards, for the most part, have continued to be the highest price sellers, although that today is subject to qualifications in special circumstances. But in the main the Standards have represented the top of the market. Their's have been the prices at which every one else has been shooting, they have been accepted, even down to date, as the "market leaders."

But under the umbrella the Standards have held in the form of the top price, have come thousands of competitors, big and little, with all sorts of operating and selling costs and with an equally varied assortment of abilities. As it got crowded under the umbrella, the Standards have lowered it, to keep it from casting so much shade, but there always has seemed to be room for one more, no matter how low the umbrella got.

The reasons why the Standard companies, in the popular opinion of the oil industry, were able to be "market leaders" as long as they have since the dissolution decree, are chiefly three,—

1—The development and great expansion of the gasoline market,

2—The development of steadily larger fields of new and lower cost crude oil supplies, and

3—The failure of the industry to stop long enough in the rush of meeting the new market demands, to associate the above two reasons with its profits.

Instead of there being so much of an actual fight for business during the first 10 big years of the automobile, one perhaps might better say the business was thrust upon all in the industry. The business was fought for but nowhere near in the same degree of severity as it is today. As competitors offered lower prices, or met rumored lower prices, there were always new cheap crude oil fields and greater improvement in refining processes which with the greater volume of business per dollar of investment, cut costs so that good profits continued to be made many times entirely regardless of the quality of the management.

At the time of the dissolution decree that broke up the Standard into smaller and ultimately competing parts, there were less than 600,000 cars and trucks in this country; today—27 years later—there are more than 30,000,000. Even had the old Standard not been broken up, nor otherwise interfered with by government, it is almost a certainty that it never could have found either the men or the money fast enough and in sufficiently large quantities, to have managed to supply this tremendously growing market. The dissolution decree could be said to be about the handsomest gift that government and competitors could possibly have given Mr. Rockefeller, Senior, and his associates. It solved both financial and management problems that were fast heading for his doorstep. However, they did not think so at the time.

The golden days of the oil industry were in the first 15 years after the dissolution decree. In this period the rate of increase in this new market for this relatively new product—gasoline—was the highest probably in many an industry.

The per cent of increases in automobile registrations by 5 year periods are (per cent of increase of car and truck registrations),—

1912 to '17	41%
1917 to '22	25%
1922 to '27	16%
1927 to '32	3%
1932 to '37	2%

But in the last three 5-year periods, due to more good roads, and better cars, the gasoline consumption increased at a greater rate than car registrations. For 1922 to 1927 the gasoline consumed increased 18% and then dropped in the following period to an

They "Followed" Back in the Oil "Trust" Days

...as for crude oil, a great many years ... (Vol. 1, p. 469.)

It is worthy of note that no witness called by the defendants undertook to deny that the Standard Oil Company absolutely fixes the price of crude oil in all the fields except perhaps Texas and California. Mr. Archbold, on direct examination, undertook to explain the Standard's manner of fixing the prices of crude. He said that they took into consideration the availability of the oil, the yield of the various products from the different kinds of crude, the volume of production, the world's supply and demand, etc. (Vol. 17, pp. 3235–3239.) On cross-examination he admitted that he and his associates were the ones who took these conditions into consideration. (Ibid, p. 3428.) It is perfectly evident from his testimony that the producer has nothing whatever to say about the price and no voice in fixing it. For instance, he said that when he had determined the price, that was the price the Standard paid; that the producer could accept this or refuse to sell his oil. He did claim, however, that the producer could run it into the Standard's tanks and pay storage at the rate of 25 cents per day per ...sand barrels, and thereby hold it until the market should ...ve. It appears that this storage charge would amount ...

...tion controlled by the Standard Oil Company runs ... 50 per cent, while in many others it is 100 per cent.

As already stated, even after making allowances for the difference in cost of transportation and cost of marketing, the prices in those areas and towns where the Standard has little or no competition are generally much higher than in places where it has a large degree of competition. This appears clearly by the fact that the profit per gallon of the marketing companies is far higher in noncompetitive than in competitive territories and places. This means obviously that the Standard Oil Company arbitrarily fixes the price of oil in all places where it has little or no competition without regard to any competitive market value. Even in places where there is a considerable degree of competition the evidence of independent oil dealers and manufacturers indicates that the price is in nearly all cases fixed by the Standard and that the competitors merely follow that price and seldom if ever go below it, for the reason that to do so simply invites further cuts by the Standard, until there is no profit in the business.

While therefore it is true that in certain sections of the country and certain towns there is a sufficient degree of competition to lead the Standard to sell oil at what may properly be called a competitive price, it is still the ...

Above quotations are from the Brief of Facts and Argument of the United States in its famous suit which "dissolved" the old "Standard Oil Trust." The quotation on the left is from page 211 and on the right from page 218 of Vol. 1 of the Brief. Even in those days prior to 1912, no competitor seemingly undertook to do any original thinking or figuring for his own price

increase of 9% and in the last 5 years (1932-37) it declined still further to under 4%.

This great automobile increase was due in part to the war. It was also war demand that helped make the oil industry so profitable from 1914 to 1918, because it created big markets for what otherwise would undoubtedly have been unprofitable products that had to be made when making gasoline, such as fuel oils and distillates. The after war boom also greatly aided in making profitable prices for all products.

During most of these last 30 years since the dissolution decree, there have been many big floods of low cost crude oil, that have come in like the tides, one after the other. Each flood tide has brought many Independent refiners who built at the new oil fields and gave the Standard's competitors the benefit of the very lowest of the new low cost crudes. It would generally be some time before the Standards and later the other major companies could adjust themselves, and the price of crude oil, to take advantage of the new oil, for they were always penalized by the higher price they had to pay for their oil from older fields. Each new flood of low cost crude, and its resultant crop of new refiners, would be a source of supply for more Independent competition and generally the means of creating much of that competition, for each new refiner would have to get new people in the business to take care of all of his output.

These crude oil floods also brought into existence what are now some of the major companies, such as Texas, Gulf, Sinclair, Skelly, Shell, Barnsdall, Pure, Phillips, Mid-Continent.

For illustration of how kind Nature was to the Standard's competition, the ink was no more than dry on the dissolution decree when in 1914 in came the big Cushing, Okla., field that went from nothing to 300,000 barrels a day in less than 6 months when the total production of the whole country, when it came in, was only 700,000 barrels a day. And this was about the highest grade of crude oil for gasoline purposes yet found, judging it by the then crude refinery methods. In the same year came in the big field at Healdton, Okla., amounting to 150,000 barrels a day. In and around both of these fields, but particularly Cushing, were built a score or more of refineries that profited tremendously from its 30 cents a barrel crude, while the Standards had to pay two and three times as much for their crude from older fields.

The Standards, during this early great growth, simply had to be price leaders because so much of the time they had to run on the highest priced and highest cost crudes. What amount of the new and lower cost crudes they could take in did not average down very much the cost of the old higher priced crudes they needed to fill up their capacity.

It was during this early part of the 30 years that the Standard of Indiana particularly, and the Standards of Kansas, Nebraska, Ohio, Atlantic and Standard of New York, and even Standard of New Jersey, were "Non-integrated" and had to buy their crude oil from producers, such as the old Prairie Oil & Gas Co., the Ohio Oil Co. and others who were large producers and large gatherers and purchasers of crude. This was another reason why they had to take crude from old fields as well as new. But the new and small Independent refiner could bob up fresh in each new pool, sometimes with his own crude an "integrated" oil company, as it were, but generally taking small producers' crude that the big companies did not have room for at the moment.

The Standards paid so heavily during this early period for being "non-integrated" that they soon pushed their way into production on their own account, to get some of the advantage that their ever rising new competitors, the Independent refiners had.

In addition to the ever growing demand for gasoline and the ever recurring floods of low cost crude oil, which permitted greater sales at ever lower costs for products and operation, the competition to the "market leaders" was also greatly aided by the sales value of years of anti-Standard campaigning.

For most of 50 years a steady anti-Standard or "anti-monopoly" campaign had been waged by Independent producers and refiners, aided by the hundred or so Independent jobbers who then existed. This campaign, or rather these campaigns, for there were scores of them, received much publicity. They had been waged in Congress and before legislatures in the oil states and in the courts. Political campaigns were fought over them. Congressional committees made investigations. The dissolution suit was immediately preceded by national investigations conducted with much publicity; one by a senate committee, one by the Interstate Commerce Commission and another by President Theodore Roosevelt's Department of Commerce and Labor, headed then by James R. Garfield, prominent attorney of Cleveland.

President Theodore Roosevelt's administration starred in its anti-monopoly suits and particularly in that against the old Standard Oil Co. As President Theodore was an excellent publicist, far better than even his present namesake, the newspapers were filled with the sins of the old Standard and the virtues of the Independents.

At the same time the west particularly was rising up in rebellion against old party organizations and old "conservative" ideas. The west had gone through several radical regimes from Populists on down the scale. When the old Standard was dissolved the west was strongly "Progressive" in its ideas and much opposed to "big business."

It was at the height of this most effective publicity campaign against the old Standard and at the height of at least one wave of political rebellion, that the automobile gasoline demand opened up, that the Standard was dissolved and that the new big crude oil fields were discovered by Independent producers and cultivated at once by new Independent refiners.

All this "anti" campaigning worked

Why "Oil Trust" Could Fix Price

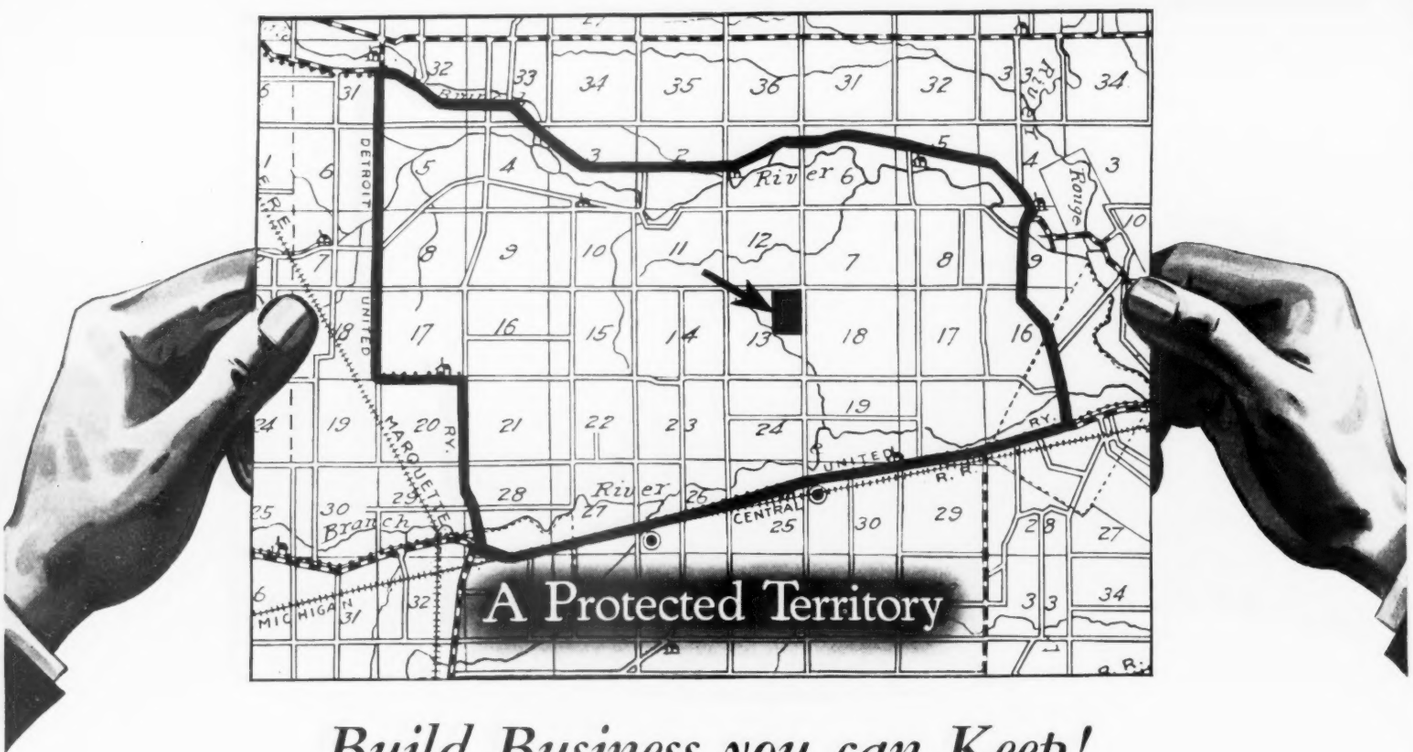
...now that that company ...their efforts to keep its control secret. The St... business in Canada appears under the heads "Montreal," "Maritime Provinces," "Winnipeg and Vancouver," and "Toronto." Averaging all over the United States, Canada, and Mexico, the refined oil business done by the independants and the Standard, respectively, is as follows:

	Independent	Standard.
	Per cent.	*Per cent.*
1897	11.1	88.9
1898	10.4	89.6
1899	9.9	90.1
1900	11.5	88.5
1901	10.7	89.3
1902	10.7	89.3
1903	11.9	88.1
1904	12.7	87.3
1905	12.7	87.3
1906	15.2	84.8

This shows that the Standard Oil Company controls from five-sixths to nine-tenths of the marketing of refined oil in North America; the proportion for the United States is substantially the same.

Above is reproduction from page 162 of the Brief of Facts and Argument by the federal government in its famous suit to dissolve the old Standard Oil Company. By maintaining from 84 to 90% of the business the old "trust" was able to keep prices up to profitable levels for itself and its competitors. This large percentage had obtained for many years prior to 1897 and continued to 1912 and then, with the rapid growth of the automobile gasoline market, swiftly declined to somewhere less than 20% today

• PROTECTED TERRITORY



Build Business you can Keep!

Would you like to have your brand of oil and gas also distributed by another jobber right around the corner from you? Then why sell a brand of tires that puts direct competition on your doorstep?

Miller believes that a jobber who builds up a good business in tires — or anything else — is entitled to keep it, and to enjoy its full profits.

Miller wants volume, just like every other manufacturer, but we don't want it at the expense of our loyal jobbers. So we protect their territory, feeling sure that is the best way to protect our own sales.

• MILLER

1939 IS MILLER'S

MEANS PROTECTED PROFITS

It costs money to build up sales volume. And who wants to build up for the other fellow? Who wants to see somebody else get the repeat sales?

Oil jobbers who sell Miller Tires are free from that worry, for they have the benefits of Protected Territory. The business they create stays at home — no competition on the same line right around the corner.

Before you spend your time or energy in tires, be sure your proposition brings you that kind of protection.

Miller sales show a 119% increase over last year. There are reasons for that remarkable showing.

There is a new line of top quality Miller Tires—combining remarkable skid resistance with unusually quiet running — and having all the protection against blowouts and the long wear that your customers want.

See this new tire, and then note that the Miller proposition has all the advantages — the money-making features — afforded by *both* large and small companies.

CHECK THESE ADVANTAGES

Large Company Features		*Small Company Features*	
High Standards of Quality	√	Protected Territory	√
Financial Responsibility	√	Higher Margin of Profit	√
Consumer Acceptance	√	Individual Assistance on local problems	√
Research and Development Facilities	√	Flexibility of Program	√
Ample Advertising Assistance	√	Personal Attention in Co-operation	√

Get the full details

Combined, as they are with Miller, these features make up one of the best and surest propositions for the Oil Jobber. For the whole story, wire or write to Miller Tire Division, 500 S. Main St., Akron, O., or 5400 Olympic Blvd., Los Angeles, Calif.

GEARED-TO-THE-ROAD **TIRES**

47th YEAR IN RUBBER

just like a national advertising campaign of today only, if anything, it was more effective and particularly it hardly cost its beneficiaries a cent. "Independent" gasoline came to be a sales brand as distinguished from "Red Crown". It did not make any difference who used the "Independent" brand as it was open to all and without charge. Independent refiners turned out their gasoline from their low cost crude and it at once took a position of great prominence in the consuming markets as part of "the Independent" brand. It did not make much difference about the specifications, in the earlier days, for a car ran on everything, including kerosine and raw "casing head" gasoline. Public opinion was so strong against the old Standard and big corporations that some motorists would simply not buy anything but "Independent" gasoline.

There were, of course, periods of low and unprofitable prices in both refining and marketing and those periods were quite painful for men who entered the business with little or no cash and who had expanded to the limit. But if they could weather a few months or so of no profits, another flood of cheap crude and a further swelling of demand would bring back good profits, often regardless of prices.

Why Prices Remained Profitable

To summarize that picture of those early days,

1—A tremendously increasing gasoline demand, due to the automobile.

2—Big and constant floods of new and low cost crude oil.

3—New small refiners who sprang up on cheap crude.

4—Standards pegged mostly to old and higher priced crudes.

5—The World War that found a profitable market for fuel oil etc.

6—The post-war boom that brought every one a car and continued profitable prices for all the products of the refinery.

7—Big publicity and political campaigns that advertised the "Independent" free of charge.

8—Continued increased efficiency of refining and marketing equipment which, with the ever growing volume, cut costs per gallon and per dollar invested.

Was it any wonder, then, that most everyone in the industry made money without bothering with any cost and price accounting?

Was it any wonder that most everyone who wanted to came into the industry, many of them to make "their pile" and then sold out, only to be replaced by still others?

Little wonder then, that the old Standards continued to be the "price leaders" and simply had to hold their price umbrella up high enough to get back their high cost crude that they had to buy?

Little wonder then that other men gave no thought to the technique of just how to arrive at price, what are the factors that go into price and what are the arts of salesmanship by which you get YOUR price, particularly a little bit better price than your competitor?

However, there were some men during the first part of this period who were salesmen enough and far enough away from the exciting profits of producing and refining to see the possibilities of applying good pricing and selling to a better price than the Standards.

Above sketch was printed in NATIONAL PETROLEUM NEWS July, 1914, and was supposed to show what finally happened to a bad market price disturber, against whom a low price was maintained until he was fully convinced of the error of his ways

As automobile engines became more refined so that qualities of gasolines became evident, a few jobbers saw the possibilities of quality selling at quality prices. That was in the day of "gravity" being the most important test for gasoline quality, and the higher the gravity, other things considered, the better the fuel. A handful of jobbers and one Independent refiner in widely separated parts of the country seized on this fact and instituted quality brands at 1, 2 and even 3 cents a gallon better prices than the competing Standards. These brands were backed up by good advertising—all local of course—good selling and fine service.

These quality brands made millions for their owners. Among the outstanding exponents of this kind of quality selling at quality prices were,—

The Wadhams Oil Co., Milwaukee.

The Western Oil Rfg. Co., "Silver Flash" Trimble, Indianapolis.

Moore Oil Co., Cincinnati.

Wofford Oil Co., Birmingham, Ala.

The National Rfg. Co., Cleveland.

There were a few others whose names do not come to mind and there also were some who specialized in quality priced motor oil.

The coming of tetraethyl lead and the higher compression engine knocked out the gravity scale as a test for gasoline quality and put every one back on one price level again. Since the arrival of lead there has been little quality pricing of quality products.

However, these few Independent jobbers and the one refiner showed what could be done by having one's own price and putting real selling behind it.

During the 1920s there developed two practices which did much to keep the average oil man's mind turned away from the job of making his own price on his own goods. The disastrous effect of these practices is with the industry still. It would be impossible to compute how many millions they have cost the industry.

These practices are,—

1—Contracting "at or below the market", and

2—Guaranteed margins to jobbers and dealers.

Contracting "on the market" between refiner and jobber was a natural development as the gasoline demand increased so rapidly. Jobbers who were

expanding and doing a good job of running their sales business, getting new dealers and putting up and running service stations, had no time to bother with daily watching of the tank car markets so as to determine just when and where to buy. Nor could they afford the big storage that anything but daily buying and shipping required.

The refiner was in the same boat. As his plant got larger he could not risk manufacturing much gasoline and taking a chance selling it on some unknown day on the tank car market. He had to have an assured daily outlet. Some refiners went so far as to establish marketing bulk plants or taking an interest in jobbers; others bought out the biggest and best of the jobbers of their period. Also to keep one's big volume of sales going on the open spot market required a large sales staff and price selling, as the gasoline then was "unbranded."

Contracting was a natural result of this situation. It had its good points but it had its bad, chiefly,—

a—Refiners quit selling in the "open spot market" until there were practically no sales, hence no "market",

b—The making of the price in contracts for millions of gallons a week for much advertised branded gasolines is left today to a handful and less of refiners who sell "unbranded" gasolines, which of necessity have to be largely sold on price and under the price of the advertised branded gasolines.

c—Major companies today have little and some of them absolutely nothing to say about the price at which their gasoline move, even though they have a few hundred millions of dollars probably invested in their brands.

d—And contracting on the other man's price has dulled and retarded the thinking of the whole industry about each company's responsibility for arriving at and getting its own price.

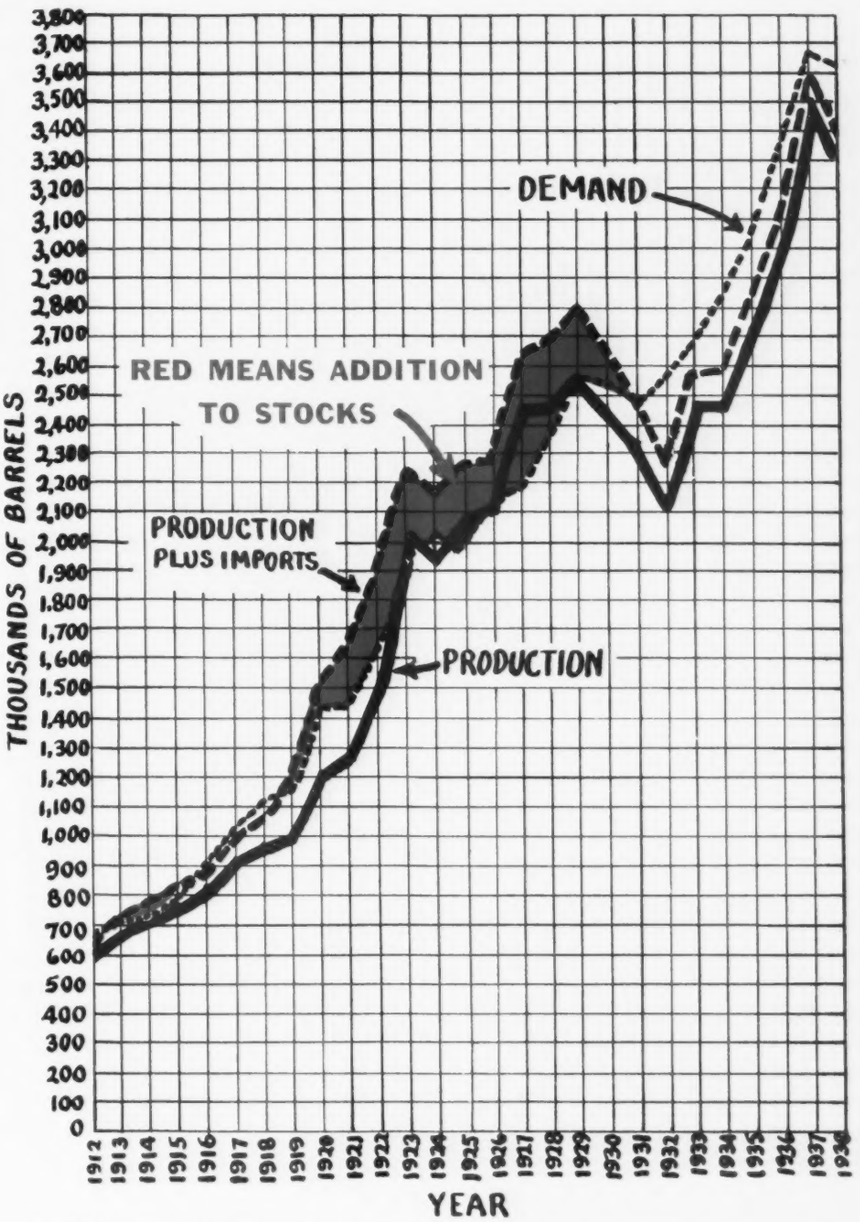
The above goes for all the so-called tank car markets. They are all "thin" or practically non-existent so far as open spot market sales go. The prices are chiefly quotations.

Guaranteed margins to jobbers, who in turn gave the dealer a margin, also relieved refiner, jobber and dealer of thinking in terms of an individual price and it hung all three more firmly to the price of the "market leader." The whole tendency of a guaranteed margin below a retail price, or tank car price, is to cause the beneficiary to use price to get business rather than sales ability and the advertising and merchandise aids of his brand. Most every one in the industry can cite a number, at least, of illustrations when guaranteed margins made for tremendous and unnecessary cost to the industry.

During the boom days of the 1920s, when oil company executives, majors, Independent refiners and jobbers, might have gotten down to a study of pricing, after the flush was off the gasoline market, along came national advertising experts who presented the glamorous picture of "consumer demand" and all that they alleged it would do. Consumer advertising has its place and it can and does do a wonderful job but, as in so many lines of businesses, companies when introduced to it are inclined to overlook a lot of defects in their own set-ups that should be cured before national consumer advertising is indulged in.

In the case of the oil companies, the national consumer advertising was adopted and placed on top of a price fallacy. Its power was used in nearly all cases to advertise petroleum products, the price of which was left entirely to a handful of small non-advertisers. No matter how good the advertising was nor how much it might improve the standing of the oil and gasoline to the public, the price net-back to the refinery from which the

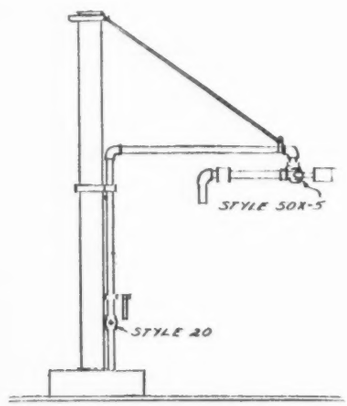
Excess Demand Dominates last 30 Years



Beginning in 1928, demand is for all oils (including crude petroleum, petroleum products, natural gasoline, and benzol). Figures from U. S. Bureau of Mines.

Above graph of crude oil statistics for the past nearly 30 years shows how for more than half that period the enormous growth in gasoline demand prevented oil producers from increasing their storage of crude oil, even though inumerable fields of large output were discovered. Red ink marks the years and the volume of the additions to stocks. In the other years the "demand" line is above both the line showing oil production in this country and crude oil imported from foreign countries

Photo above shows installation of Chiksan Ball-Bearing Swing Joints on loading rack at the plant of one of the large independent oil companies in Southern California. Oil companies and distributors everywhere find it pays to standardize on Chiksan.



The Loading Rack illustrated above requires only two Chiksan *Ball-Bearing* Swing Joints —Style Nos. 20 and 50x-5, shown below.

Style No. 20
1-Way Swivel

Style 50x5

WON'T STICK, LEAK OR BIND

Stop leaks and cut maintenance expense by standardizing on Chiksan *Ball-Bearing* Swing Joints. They never require tightening or adjustment. Full 360° rotation with each Swivel. Easy operation is not affected by temperature or pressure.

Factory Representatives in Principal Cities

Distributed Nationally by Crane Co.

CHIKSAN BALL BEARING SWING JOINTS

CHIKSAN TOOL COMPANY

BREA, CALIFORNIA

brand came, could only be what a few small Independent refiners and their private brand customers said it could be. These price setters, so-to-speak, all the time were trying to sell their private brand gasolines against the national brands and their experience showed that for the most part this had to be done on a price differential below the price of the national advertised brands. These brands, from the small competing refiner's viewpoint, therefore were nothing more than premiums, thrown in as something extra, a way of cutting price.

In probably every other use of national advertising the purpose is not only to get national distribution but also to get and insure a reasonable price. In the oil business it seems to be only to get distribution, to get gallonage but not to get price. This misuse of national advertising would seem to be another illustration of the blindness of the industry to price and the failure to appreciate personal responsibility for his price by each seller.

Another development in the industry's thinking that probably can be said to have dulled its perception of personal responsibility for price was the coming of the realization that there is a "law of supply and demand" and that too much of a petroleum product generally means a low price for it.

While Mr. Rockefeller, Senior, had harped on this point in past years, the idea was generally hooted at if it was given any consideration at all. The average oil producer for years believed that, no matter how much oil he produced, the crude buyers should always buy it at a good price, regardless of how much they already had in storage. And refiners, who came largely from oil production, applied the same idea to their operations, that "the market" should always absorb all that they could make at profitable prices, and that "the market" never should drop, no matter how much petroleum product they sold at below the going market prices of the Standards and any other large companies.

The oil trade papers and a few association executives, hammered away about the "law of supply and demand", collected and reported statistics promptly for the first time in the industry and finally opened the door for the coming of the economists who continued the education of the industry. Then, all of a sudden, as it were, the whole industry became aware of the existence of "surplus" crude and gasoline and at times other products. Whereupon, it may truthfully be said on the whole, the industry sat back and waited for the "surpluses" to be absorbed, during which waiting there was, of course, nothing at all done by each individual about getting a shade better price for his particular products.

Just where the "surplus" was and just who had it, never seemed to interest any one. Nor has it always been very clear just what measuring device was used to determine that there has been a "surplus." An increase in storage of some of the big companies who were in the best position financially of any in the world to carry that storage if they wanted to, or to restrict their operation, seemed to be a part of this "surplus" on the absorption of which every one must wait before prices could get better.

There has been much talk about "distress" gasoline in the hands of the small refiner, who has generally been reputed to be on the verge of bankruptcy often when he was far from it. This talk overlooks entirely the fact that the small refiner who has sold on the "open spot market" and who thus created the price indicator that all the big companies used in their sales contracts, had founded his business on steady daily open market sales. Without him and his daily sales there could be no "open spot market" because the majors, years back, withdrew from that market with much dignity because they were too big to be bothered with daily sales, yet made it the basis for all of their prices.

Whenever there would be periods of low refinery prices, most every one would look at the stock figures and declaim loudly against the "surplus" and the sales of "distress" gasoline and cry to the heavens for "leadership". And all the time they would not sell on the "open spot market" except, on occasion some might slip in a few train loads at cut prices through brokers.

And all the time the small refiner was trying to run his own business as privately as he could and keep his unbranded customers supplied with his unbranded gasoline, hoping that they could keep alive against the competition of the big branded companies who sold their products at the small refiners price and threw in a half cent and more of advertising and merchandising aid free of charge.

None of this was indicative nor conducive to clear thinking about one's duty towards one's own price.

The industry is still a great believer in the theory that the economists' idea of "surplus" controls absolutely everyone's price, all the way from all refineries down to the last red gasoline pump. To listen to the "surplus" theory the oil industry is just about as big as a dish pan in which every cup of water instantly affects the level all around the circumference of the pan, and in which, of course, there are no human beings.

Oil men are so immersed in their "surplus" figures that they do not seem to realize the vast spaces and varying conditions all over the country across which "surplus" gasoline cannot flow quite as quickly, at any rate, as across the bottom of a dishpan; nor do they realize that some companies have "surplus" gasoline because they want it; and last, but particularly, they do not seem to realize that, within reason, prices can be fought upwards, if men are convinced that they can be raised.

There are crimes of price policy that are just as great and just as disastrous as "surplus" of products, if there is any "surplus."

Isn't it about time that the industry advanced another step in its thinking and turned its attention from the bugaboo of "surplus" and while not relaxing its attention to proper balance of operation, take up the study of its prices, what are they, how are they based and why?

How can an oil company, big or little, originate or have something to say about its own price?

What chance is there for getting its own price into effect?

Any good merchant or business expert will say, we believe, that a price should be the result of careful planning. It should be arrived at by studying all costs of the business, including depreciation and all other charges, and then adding a reasonable profit. That then becomes the price that the business must get in order to operate successfully. Whether that is the price that should be asked is subject to further study of market conditions. If that further study seems to indicate that the price just estimated can not be obtained, then that raises the question of where was the management at the start of the operation? Didn't it start wrong in buying or making the merchandise or establishing its financial set-up on such a high cost basis?

At all events, if the first estimated price cannot be obtained then that price is modified by the management. But that is a cut of the company's own price rather than any meeting or cutting of a competitor's price. No matter how much the management decides to cut, that first profitable price stands before the management as the price toward which all the fighting must be done. Good management will cultivate the thought that, if it is resourceful enough and fights hard enough, it is generally possible to get that price somehow. And that at all events, if that price cannot be had, the failure to get it is a reflection upon the management of that particular company and cannot be blamed idly upon "competition."

All of which is by way of an idea set-up, but if the oil industry is to turn its thoughts and actions away from "distress" gasoline and "surpluses" and faulty price structures, it must look to the accountant's idea of a price that is further up on the horizon. There are many ways in the art of getting prices that the oil industry has lost sight of, other than trying to "kid" the price reporting mediums into printing high prices for the seller and low prices for the buyer, all at one time. The investigation and adoption of these ways is entirely legal, in fact they are the very life of barter and trade in free competition. These ideas will readily come to the oil man who sits down to make a serious and continuing study of establishing HIS OWN ORIGINAL PRICES on his products, and they apply to all, major, Independent refiner, jobber and dealer.

Plan to Make Your Price Profitable

Here are some points that the oil man can keep in mind.

1—Have your accountants devise a system whereby the profitable price that you SHOULD GET is constantly before you.

2—Study that PROFITABLE PRICE, if possible, at a stated hour every morning on the opening of business to see if there is anything NEW in the situation that might help you to get it or to work a tenth of a cent, or even a hundredth of a cent nearer that price. Have a staff meeting on the subject.

3—Post that PROFITABLE PRICE in all sales offices and see that every man who has to do with selling knows about it, even though you do not ask him to try and get it that day. Then every man knows that every sale he makes at BELOW that price is not a credit to his sales ability nor can it put more money in his pocket. In fact he knows it can only lead to bankruptcy and his unemployment.

4—Compensate every man possible who has to do both with MAKING the PROFITABLE sales price as well as the ACTUAL sales price and every man who has any influence on the sale itself, according to the price he actually obtains. Penalize each man where the price obtained is below the PROFITABLE one and reward him with extra dollars if at or above that PROFITABLE price. In other words, let the talk in the sales department be of good prices and profits and not just of gallonage. More companies are moving into this kind of an operation all the time and that is one great reason why some oil companies are making the relatively good showings that they are.

5—Prices should be determined and established by THE MANAGEMENT, never by the men in contact with the customer, but as far away from those men as practicable, this according to the best principles of sound business practice.

6—Give the men who have to collect the price from the customer all the information practicable that will HELP him to get the price. Keep those men in as optimistic atmosphere as possible. Keep them armed with arguments against the bearish talk and influences they may encounter.

In this connection here are a few

The Accepted Standards of Pennsylvania Bright Stock Excellence Since 1900

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ASTM POUR POINT
10 15 20 25

ASTM CONRADSON CARBON
.8 1.0 1.2 1.5

ASTM COLOR
3½ 4 5 6

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Manufactured Solely by

THE CONEWANGO REFINING CO.

Warren, Pennsylvania, U. S. A.

"don'ts" that sales managers recommend,—

Don't supply salesmen with alibis why they can't sell at good prices,

Don't "weep" or "bellyache" in their presence about "conditions,"

Don"t gossip about "cut prices" as it may not be true.

Don't meet a "cut" price until you are sure of the price, the reasons for its being "cut" and that you really should meet it,

Don't meet a "cut" price until you have fought another 24 hours, say, for your own price. Immediate acquiescence in a "cut" price is not only an acknowledgment of defeat for YOUR price policies but a bad example for the salesmen.

7—Make price reductions as small as possible. The industry customarily deals in an eighth of a cent per gallon which, however, is $10 per car, and on the tens of thousands of cars moving every day this is a sizable amount. A dozen years ago NATIONAL PETROLEUM NEWS changed reporting its tank car prices from common fractions to decimals, not only for greater convenience of the industry in computing prices and rail freight but to reduce the size of the poker chip the industry was playing with so that the industry could, if it wanted to, change its prices in the second or even third place past the decimal point. Price changes then could be in amounts as small as fifty cents or a dollar or two a car, in the tank car market, and in the jobbing and retail end, in amounts of only a tenth of a cent per gallon or even less when it comes to larger deliveries. As units of sale get larger the opportunity and desirability for using smaller price factors grows.

8—Never lose an opportunity to try and get a better price, when that is justified. You never get a better price if you don't ask for it, a shop-worn truism that is not often thought of, seemingly, in the oil business.

9—However, according to sales experts, don't ask a better price for the sole purpose of cutting it. No one then can have any faith in any price, whether it is profitable or not.

10—Don't ask a better price for the sole purpose of giving a larger discount for a "contract" sale.

11—Don't allow discounts or differential for "contract" sales that are ridiculously large and then wonder why the going market price keeps coming down, say sound business observers. Many in the industry, both refiners and jobbers and retailers, have been indulging in this form of insanity and crying loudly the while that the "market price won't hold." These price cutters are not making prices, they are simply making and dealing in discounts.

12—ADVANCE PRICES AT EVERY OPPORTUNITY, providing prices are below the proper profit level. If every individual in the oil industry, in all its so-called markets, was fighting all the time and at every chance trying to get a tenth or even a hundredth of a cent per gallon more, the trend of prices might be more up than down. If you cannot raise at one station or on one product, try at another station or on another product. Don't wait for your competitor to move, because he is waiting for you and a few thousand or hundred thousand like you. Trial advances, if properly handled, should not cost anything and some of them may stick. You never know until you try.

Here are some things to REMEMBER, selected from the advice of sales experts,—

It is much easier to get a market down than it is to get it up, especially one with many sellers and buyers in it. Weak selling and spineless pricing will always bring price levels down but it takes courage and intelligence and a strong will to fight a market price up, and most people have weak backs rather than strong ones.

The psychology of these ten years of depression is more conducive to spineless selling and lower prices and that the talk and the policies of the administration at Washington, are against profitable prices for industry rather than for such prices; hence no opportunity should be overlooked to build up prices to profitable levels.

Cut prices, like murder, will always come out. Unfortunately too many men in all branches of the industry do not believe this but think that they are so smart that they can get away with it.

And, say the sales sharks, the open price sellers—such as the "trackside" stations—are successful not just by reason of any superior skill in management nor by having evolved any better "method" of selling, but because of the advertising value of the cut price which appeals to some people; and that any price which can be thus successfully and profitably cut over any period of time is obviously too high a price. The answer to the exclusive "price sellers" painful though it be, are such narrow margins that only the most efficient can operate, that establishes prices that cannot be profitably cut over any period of time.

Here is the industry's price picture in a few words:

No longer is price in the control of any one company in a given territory. The "monopoly" that had 85% of the business and maintained good prices is gone, having shrunk to a volume of less than 20% of the total gallonage in any territory.

Oil men have shifted the responsibility for their tank car prices to "the open market" in which only a handful of them operate.

Oil men have not realized personal responsibility for price but have left it to "the other man."

Oil men have waited for the "market leader" to act but he is now impotent to do anything except cut and meet cuts.

Oil men are waiting for the removal of alleged "surplus" stocks in the hands (?) of unknown companies, to bring a day of automatically advancing prices. In the meantime the industry waits for this miracle to arrive.

The oil industry's prices today are in the hands of hundreds of thousands of individuals—of 10,000 and more oil producers—of 300 refiners and majors—of 10,000 jobbers and of 400,000 and more retailers.

Your price is *your responsibility* and not that of the "other man" or of "the market" or of the non-existant "market leader."

What are you going to do about it, that is if you want profits?

On every office wall might be hung a sign, reading, substantially, as follows:

"It doesn't take brains to cut a price---but it takes both brains and guts to raise one."

Dear Editor:

I have read a number of very excellent editorials of yours during recent months but the one in the August 2nd issue re the New Deal's attempts to control the oil industry is a pip! More power to you and I only regret it cannot be jammed down the throats of every single imitation statesman in the Congress as well as down FDR's throat and all of his satellites.

As a matter of fact, FDR personally, singly and individually is responsible, directly responsible for all of our woes in this USA since 1933, and the end is not yet; that is, until the end of 1940—but he is on the way out, never fear, after which these imitation Democrats will starve to death for another decade or two or three or more!

I hold no brief for the Republicans, so-called, and the truth is they are *all* yellow dogs, every mother's son of them, but you are bound to admit the Democrats since Wilson have made nothing but hard times for all of us and to boot have run the public debt up to unheard of heights. If you wish the straight dope re this present Congress, just read David Lawrence's column of the 7th inst., about "What Congress did and did not do."

How the hell the American people (the common peepul) stand for FDR and Congress is beyond comprehension. They are a very big and inarticulate mass and for the past 6 years have been dead from the neck up, but they seem to be stirring in their sleep and some day may wake up before it's too late, but that's our only hope—A-men! (Just trying to get it off my chest and you seem to be on the receiving end!)

Very truly,
G. H. Corse, Jr.
G. H. Corse Jr. & Company,
San Francisco, Calif.

RICHMOND, Va., Aug. 14.—Virginia's gasoline tax brought $9,002,675 during the first six months of the year, officials report, more than 9 per cent above the Jan.-June period of 1938 when collections were $8,239,303. June collections were up nearly 14 per cent, $1,708,033 as compared with $1,503,950 collected same month last year.

NEW YORK, Aug. 14.—The New York Fuel Oil Ass'n. will hold its fourth Silver Cup Tournament at the Rockwood Hall Country Club, Tarrytown on the Hudson, Sept. 26. Prices will be given for all class golfers and non-golfers, and there will be a luncheon and steak dinner.

Builds Tourist Cabins

Six tourist cabins have been built by the J. J. Sprafka Oil Co., Minto, N. D., to handle summer tourist business in this northern gateway to the west, according to J. J. Sprafka, owner.

Turns From Credit to Cash

"A small cash trade is better than big business on credit", says Paul Peterson, Blackwell Hill Service Station, Central Point, Ore., after experiencing one year of credit sales.

"I am trying out a strictly cash basis this year", he says, "instead of the credit system I lost heavily on last year."

Quota For Salesmen

To improve sales at the bulk plant, each salesman of a Lebanon, Tenn. marketer is given a quota each month. "This has helped our business," this marketer says.

Under-surface loading of trucks, used entirely by this marketer, has reduced loading costs "very materially," he says.

Wants Rural Outlets

More country service stations are being sought by a Tennessee marketer, who says; "Reports show definitely that a revival has commenced in the country store business."

IT'S HERE!

THE 1940 MODEL
"TUNE-UP TIME"
A NEW RADIO SHOW
featuring

ANDRE KOSTELANETZ
and his Orchestra
of 45 men

TONY MARTIN
singing Master
of Ceremonies

LISTEN
MONDAY NIGHTS

KAY THOMPSON
and her
Rhythm
Singers

COLUMBIA BROADCASTING SYSTEM
7 p.m., E.S.T.; 6 p.m., C.S.T.—9 p.m., M.S.T.; 8 p.m., P.S.T.

Presented by THE ETHYL GASOLINE CORPORATION

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National Petroleum News
1213 W. 3rd St., Cleveland, Ohio

Yes. . . I'm one of those fellows who is always promising himself a personal subscription to NPN. So here goes—

Enter my subscription for the next 52 weeks. Enclosed is $3. (Canada $4, Foreign $4.50).

NAME .....

St.-Box .....

City-State .....

SUMMER PROFITS ... FOR

New ways to get more business from motorists visiting their stations, as told to NPN by independent marketers:

Train the dealers in the technique of selling tires, batteries and other accessories to time-payment buyers.

Teach station salesmen to observe the needs of a car for tires and batteries and other accessories.

Have a Family Car Week, with bargain prices for services and accessories a car that has been driven for some time is likely to need.

Check new residents moving to the city and give their names as prospects for the nearest dealer.

Study the flow of business at stations and adjust working hours to have sufficient manpower available at rush hours without loading the payroll.

Spend time on the station island yourself, for customers like to do business with the "boss".

Jobber Runs Dealer School On Time-Payment Selling

Time-payment schools to teach its dealers how to sell tires and other automotive accessories on credit are conducted by the National Gas & Oil Sales Co., Chicago, jobber of petroleum products and automotive supplies.

The schools were started, the company says, because the time-payment buyer represents 50 per cent or more of its potential market, because "the average dealer only dabbles in this market," and, also, to make time payment selling "as simple as cash selling," in the words of P. C. "Tex" Farris, sales manager.

"These schools," Mr. Farris says, "were first started in February of this year. It was the purpose to completely revamp the outlook on this merchandise (tires, batteries, grill guards, car radios, car heaters, seat covers, etc.) as a side line.

"This was not as difficult at this period as it might have been when there was a reasonable profit on the sale of gasoline but the Chicago gasoline dealer would have been put out of the business completely if other lines had not entered the picture, for our price structure here for the past several months has been very distressing.

"We started holding special time-payment schools, at which only six to 10 dealers or their representatives were present. At these small groups, it was found each man would take active part in the discussions and each man shared his experience in what he had been able to do, or in what he should have been doing and was not.

"It was pointed out that the time-payment buyers are as distinct a group of individuals as are home time-payment purchasers.

"He (the time-payment buyer) knows that a finance charge is added, but he has no objection to it. The budget buyer is in a class by himself, because the cash purchaser is too often trying to chisel the price down to where there is no profit left for the dealer. Therefore, the budget buyer is the dealer's most lucrative field. Some of the tire companies sell as high as 60 per cent of their merchandise on a time-payment basis.

"We pointed out the necessity of identifying their station with a sufficient number of attractive signs, calling attention to the fact that tires and accessories could be purchased there on time, and with no down payment. Also, we showed samples of small signs to be placed on tires, etc., mentioning the weekly cost of the article.

"This was found to be unusually effective. It was pointed out that the station should assume the attitude that they were distinctly a time-payment store, leaving the cash sales to shift for themselves. In this way, even the cash sales were materially increased.

"After each one of the many schools held, there were from one to several time-payment deals made the following day.

"One of the most outstanding results of these meetings was the attitude in which they left the dealer, for he naturally felt that we were interested sufficiently in him to spend time and money in showing him how to make more money for himself, and in this way, our house enjoyed the good will and, perhaps, the purchase of most of his accessories from us."

★ ★ ★

Study Car Needs To Build Sales

Displays, demonstrations and particularly, observing customers' needs, are the means used by Milder Oil Co., Omaha, Neb., to promote tire and battery sales. Gasoline sales are boosted through direct mail advertising, personal solicitation, and giving the "best, helpful service we know of", in the words of A. H. Anderson, member of the company.

The company is operating a parking lot "with profitable results", Mr. Anderson says.

Meters have been installed at its bulk plant loading docks. Trucks are inspected weekly for air pressure, oil level, chassis lubrication, battery, water, and other points.

Recently, the company bought a new 1600-gallon truck.

The company also sells and services oil burners, operating five trucks in its fuel oil department.

★ ★ ★

"Family Car Week" Urged To Aid Sales

J. N. Benedict, who with Jim Benedict runs Jay's Service Station in Johnstown, O., has had such success in increasing his business with a drive on servicing the family car in August every year, that he suggests a Family Car Week for the entire oil marketing industry.

"Let all the oil companies get behind it and set one week in the spring to push the sale of a new set of tires, spark plugs, polish, oil change, lubrication and other things the family car needs," Mr. Benedict wrote NPN. "All stations should be painted or cleaned up for this event and I believe it would sell a lot of goods."

He has carried out this idea at his

own station for eight years, and every August he has special sales on washing, greasing, tires and in fact marks all his goods and services down a few cents. The first year or so he had this anniversary sale only one day, but since he has had to extend it to a full week, he says. Preliminary to the event, he goes over his island and curbing and cleans or paints and puts suitable displays in the windows.

"It works for us, why won't it work for all service stations," he asks.

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Checks New Residents For Dealer Prospects

The name of every newcomer to the city is given to the nearest dealer as a business prospect to call on by P. C. Black Oil Co., Troy, Ala., according to Pete C. Black, owner.

One-hour "pep" meetings weekly for its best dealers are held to push motor oil sales. More personal calls are being made on batteries and tires and a more complete line of new accessories is being stocked for summer trade, according to Mr. Black.

To save outside labor costs, he bought a complete set of tools and paint sprayer for use at his bulk and service stations.

Every bulk and service station employe of the company gets a two weeks' vacation with full pay during the summer, says Mr. Black.

In addition, the attendant with the best record of new customers, is taken on a fishing trip to Florida, he adds.

★ ★ ★

Remodeling, Enlarging

R. E. Benson and Sons, Lodi, Ohio, are opening a new and larger parking lot and remodeling their tourist cabins.

They handle fishing licenses as a service to fishermen.

★ ★ ★

Meets 'Gifts' By Selling

Beyland Oil Co., Moorhead, Minn. is "meeting competitive methods of free gifts," according to R. B. Beyland. It is boosting motor oil sales by personal calls and by means of "advertising and price methods on trade-in" batteries and tires, is endeavoring to sell more of these products.

★ ★ ★

Put in New Lift

The Sebring Gas & Oil Co., Sebring, Ohio, has put in accessories to get more customers into the station, W. A. Byers says. It has also installed a new lift and latest lubrication equipment.

Revised Man-Hours At Its Stations

"Better selling than ever before" and "less man-hours but better efficiency", are the methods which Fair Price Stations, Inc., Wooster, O. is using for increased business this summer.

This "better selling" includes, first, better training of employes, says R. K. Shoolroy, president. He explains the company has a supervisor whose job it is not only to train the men in how to service a car, but in how to explain the merits of its products to the customers.

"When we use the term 'better efficiency', we are thinking in terms of training our men to a definite routine method approach to the car and service of the car. We have this set up in our manual as 'circle service'.

". . . . We are also thinking in terms of using less man hours per station," Mr. Shoolroy continued. "We have made a detailed time study of the service at our stations at several points to determine whether we had more help at any given period than needed. As a result of these planned studies, we have been able to reduce the number of man hours required for efficient operation at the station, and, at the same time, give the station the extra help during the peak loads."

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Gasoline Advertising Portrays Speeds

The speed-minded public is being catered to with a "flying" gasoline handled by the Holt Oil Co., Federalsburg, Md.

A black and yellow piece of direct mail advertising calls this gasoline a "modern motor fuel designed specifically for your high-speed motor.

"Air-flight smoothness!" it goes on to say, "High power! The kind of acceleration that says 'Give it the gun, and you're gone with the wind!' " A "zooming climb . . . rivals a plane" and "brings to your driving many of the pleasures of flying," this piece promises.

An airplane in flight at the top of the piece intensifies the flying idea.

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Builds Cabins, Stations

A parking lot, tourist cabins, and service stations are being opened or built by H. A. Goos, Winner, S. D. Stations are being built at Presho, Kimball and Colome.

Sales Meetings Valuable

Monthly sales meetings, where every service station man of Union Oil Co., Inc., Montevideo, Minn., has his own say about selling and service, are proving effective in creating better salesmen, according to P. E. Ludtke of that company.

Attendants lacking the necessary initiative are given special instructions on how to overcome this handicap.

★ ★ ★

Buying and Building

Recent purchases by Midway Oil Co., East Liverpool, O., are a new 3-ton truck. It has opened a new parking lot and is building an enamel and brick service station, says George T. Farrall, general manager.

★ ★ ★

Loans Cards to Clubs

An unusual method of reminding motorists of its service stations is the loaning of playing cards to clubs and lodges. This is done by Midway Oil Co., East Liverpool, O., according to George T. Farrall, general manager.

★ ★ ★

Installs Meter

A new meter has been installed at the bulk plant of Virgil Anderson at Aledo, Ill. He is boosting gasoline and oil sales with more contacts, direct mail and newspaper advertising, he says.

★ ★ ★

Quick Delivery Service

Quick Deliveries from the bulk plant is a means of boosting business for J. J. Sprafka Oil Co., Minto, N. D. The company delivers every order, no matter how small, within four hours, says J. J. Sprafka, owner.

★ ★ ★

Boss Greets Buyers

Because everybody likes to do business with the boss himself, J. J. Sprafka, owner of the J. J. Sprafka Oil Co., Minto, N. D., gets out on the drive to meet all customers in person, then wishes them good luck when they drive out.

★ ★ ★

Buys Battery Tester

Anderson Oil Co., Burr Oak, Kans., has bought a battery testing machine, is meeting mail-order house competition on tires and is handling "seasonable" accessories, D. L. Anderson says.

★ ★ ★

Special Tire Salesman

One man is assigned the job of selling tires and batteries by Tessmer Oil Co., Alexandria, Minn., says Otto E. Tessmer.

★ ★ ★

Sam B. Pearce, Gadsden, Ala., has purchased two 1½-ton trucks and has built a drive-in service station.

Markets

Mid-Continent

TULSA, Aug. 21.—Unprecedented action of six producing states in shutting down their oil wells, resulted in highly unsettled Mid-Continent markets last week. First announcement of the shutdown action resulted in many Mid-Continent suppliers withdrawing all their open spot quotations. After things had settled down somewhat at the close of the week, suppliers began filtering back into the market, reporting new gasoline quotations 0.125 to 0.375 cent above those which had been withdrawn. Stocks position of many refiners made it necessary for them to prorate their supplies among their regular customers, it was said.

In an effort to supplement his own production, one Oklahoma refiner reported he was buying 100 cars of "Q" gasoline on a market-price-date-of-shipment basis.

Quotations and sales prices reported for Grade 26-70 natural gasoline advanced 0.25 cent each day for three days, finally leveling out at 3.75 to 4 cents both f.o.b. Breckenridge and Group 3. Most available supplies were being drawn from storage.

Kerosine quotations reported by Oklahoma refiners were 0.125 cent below the previous week's level.

Pennsylvania

CLEVELAND, Aug. 21. — Western Pennsylvania refiners reported a marked scarcity of neutral oil, especially the 200 vis. lower pour test grades, during the week ended Aug. 19. Two lower field refiners said they had reduced their quotations for 46 and 47 w.w. kerosines, 0.125 cent to 5 cents.

One cent advances in their quotations for all 200 vis. grades of neutrals, reported by two refiners, brought the lows of the price ranges to 20.50 cents for zero pour test, 19.50 cents for 10 p.t. and 19 cents for 15 p.t. Other advances in quotations for neutral oils, such as a 0.5 cent advance for all 150 vis. grades, reported by one refiner, and 1 cent advances in quotations for 200 and 150, 25 p.t. grades, reported by two other refiners were within the price ranges already shown.

One refiner reported advancing his quotations for all grades of bright stocks 1 cent to 20 cents for 10 p.t., 19 cents for 15 p.t. and 17.50 cents for 25 p.t.

Two refiners reported withdrawing their quotations for 124-126 white crude scale wax. Quotations reported by two other refiners for this product were at 2.85 cents and 2.90 cents.

Gulf

NEW YORK, Aug. 21.—The shutdown of southwestern wells resulted in a highly unsettled Gulf Coast Bulk market during the week ended Aug. 19, according to reports of traders. Prices, they said, were largely nominal, with one buyer reporting that an inquiry for a mixed cargo of gasoline, kerosine and gas oil failed to attract sellers.

Four refiners reported they have withdrawn from the market completely until the crude situation clarifies. Another said that due to the shortage of natural gasoline for blending he was forced to withdraw his quotations for all grades except leaded gasoline.

As the week ended, suppliers who were nominally quoting gasoline, kerosine and gas oils advanced prices from 0.125 to 0.50-cent per gallon. None indicated that they were anxious for business, even at the higher price levels.

Mid-Western

CHICAGO, Aug. 21.—The majority of tank car marketers in the Mid-Western market said that lack of supplies had forced them to withdraw gasoline quotations the week ended Aug. 19. Prices for all grades, with the exception of 70-72 octane, were advanced 0.5 to 0.625 cents during the week.

One refiner said he had shipped a 40-car train of gasoline, mostly 70-72 octane grade, from his Oklahoma refinery to cover both spot and contract orders at prices 0.125 cent higher than he had previously offered the gasoline.

Inquiry for gasoline was active during the week, tank car marketers and refiners reported. Refiners who were still in a position to offer material said they were confining shipments mainly to regular customers. Some resellers here were reported to be seeking gasoline supplies in Illinois and Michigan.

Eastern

NEW YORK, Aug. 21.—A Charleston supplier who had been offering both 60-64 octane and 65 and above octane gasoline reported last week that he had withdrawn from the market. Another Charleston supplier reported advancing his quotation for 65 octane and above gasoline 0.25 cent to 6.25 cents. A Boston supplier reported reducing his posting for 65 octane and above to 5.75 cents, and said he was offering 60-64 octane at 5.50 cents.

Prices for gasoline along the eastern seaboard were otherwise unchanged according to suppliers' reports, although some shading of posted prices was heard at one or two points. Movement of gasoline was said to be normally heavy, chiefly against contracts.

California

LOS ANGELES, Aug. 19. — California bulk oil suppliers were inclined to raise their sights when quoting on offshore movements eastward through the Panama Canal, in anticipating increased demand for local products as a result of drastic shutdown curtailment in the Mid-Continent area it was reported here. Higher prices amounted to about a quarter of a cent a gallon on some grades of gasoline, and put the Atlantic Foreign quotations approximately in line with the normally higher prices quoted on Pacific Foreign shipments.

A part cargo—7000 tons of 400 e.p., minimum 65 octane motor fuel was reported sold for Atlantic Foreign delivery at a price of about 4.50 cents, f.a.s. Los Angeles. Current quotations on this grade range from 4.50 to 4.625 cents. Nominal quotations on higher quality gasolines were: 4.625 to 4.75 cents for 390 e.p., 66 octane; 4.75 to 4.875 cents for 390 e.p., 68 octane; and 4.875 to 5.25 cents for a 375 e.p., 70 octane product.

Another feature of California offshore markets was the entry of Japanese buyers, seeking quotations on cargo lots of almost every product shipped in bulk—perhaps anticipating embargo legislation when Congress meets in 1940. Bids were reported to have been asked on kerosine distillate, lubricating stock, gasoline, crude and aviation gasoline.

Reversing the usual trend, gas oil demand in the domestic market has increased ahead of kerosine distillate—largely as a result of recent large-scale purchases on the open market for offshore shipment. Independent plants were asking 95 to $1.00 for a good grade gas or diesel oil and around 95 cents for kerosine distillate. Expectations were that gas oil cargo prices would advance.

Natural gasoline demand was reported to have slumped because of the weather, and sales by independent plants were reported as low as 5.6 cents for a 82 gravity, 21-pound product, compared to the previous low of 5.75 cents.

Although rack prices on independent gasolines continued to hold in most instances, suppliers were wondering how long this would be true in the face of cheaper blending stock and the fact that prices paid for surplus stocks showed a downward trend. This price is now reported to be 7.25 cents—off a

(*Continued on page* 43)

N.P.N. Gasoline Index

	Dealer T.w. Cents per	Tank Car Gal.
Aug. 21	9.68	5.63
Month ago	9.66	5.68
Year ago	10.14	6.07

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of 12 wholesale markets for regular-grade gasoline.

REFINERY TANK CAR MARKETS

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days) unless otherwise stated. Prices in cents per gallon, except heavy fuel oils in dollars per barrel of 42 gallons, wax and petrolatums in cents per pound in barrels, tank car lots, FOB refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.

Gasoline

Prices Effective	Aug. 21	Aug. 14
OKLAHOMA		
U. S. Motor: (Octane L-3)		
62 oct. & below	4.375– 4.625	4.125– 4.625
63-66 oct.	4.625– 5.00	4.50 – 4.875
67-69 oct.	4.875– 5.25	4.625– 5.125
70-72 oct.	5.125– 5.50	5.00 – 5.375
60-62, 400 e.p.	(e) 4.375	(h) 4.25 –4.375
WESTERN PENNA. REFINERY QUOTATIONS		
Bradford-Warren:		
Motor gasoline:		
U.S Motor (58-62°)	(h) 4.625	(h) 4.625
Min. 65 oct.	(h) 6.25 –6.50	(h) 6.25 –6.50
"Q" gasoline	(h) 6.25 –6.50	(h) 6.25 –6.50
Other districts:		
Motor gasoline:		
U. S. Motor (58-62° gravity):	4.50	4.50
"Q" gasoline	6.00	6.00
CENTRAL MICHIGAN (a)		
Str.-Run Gasoline	4.50 – 4.625	4.00 – 4.50
U.S. Motor: (Octane L-3)		
67-69 octane	(e) 6.25	(e) 6.25
70-72 octane	7.00 – 7.25	7.00 – 7.25

Prices Effective	Aug. 21	Aug. 14
CALIFORNIA (3c tax to be added if used in state)		
U. S. Motor:		
54-58 gravity, for instate shipment	6.75 – 9.25	6.75 – 9.25
54-58 gravity, for outside state shipment	6.75 – 9.00	6.75 – 9.00
58-61 gravity, 375-400 e.p., 65 oct. & above	7.75 – 9.75	7.75 – 9.75
N. TEX. (b)		
U. S. Motor: (Octane L-3)		
62 oct. & below	4.375– 4.625	4.25 – 4.50
63-66 oct.	4.75 – 4.875	4.625– 5.00
67-69 oct.	4.875– 5.125	4.75 – 5.00
70-72 oct.	5.125– 5.50	5.00 – 5.50
60-62, 400 e.p.	(h) 4.375	(h) 4.25
KANSAS For Kansas destinations only)		
U. S. Motor: (Octane L-3)		
62 oct. & below	(e) 4.75	4.50 – 5.00
67-69 octane	(e) 5.00	4.875– 5.50
70-72 octane	(e) 5.50	5.25 – 5.875
W. TEX. (b)		
U. S. Motor: (Octane L-3)		
62 oct. & below	(h) 4.50 –4.875	(h) 4.25 –4.50
63-66 oct.	(h) 4.875–5.25	(e) 4.75
67-69 oct.	(h) 5.125–5.50	(h) 5.00
70-72 oct.	(h) 5.375–5.75	(e) 5.25

Prices Effective	Aug. 21	Aug. 14
CENTRAL WEST TEXAS (Prices to truck transports)		
U. S. Motor Gasoline: (Octane L-3)		
62 oct. & below	(h) 4.25 –4.375	(e) 4.25
63-66 octane	(e) 5.00	(e) 5.00
66-70 octane	(e) 5.25	(i)
E. TEX.		
U. S. Motor Gasoline, (Octane L-3)		
70-72 oct.	(e) 5.00	(h) 4.625–4.75
60-62, 400 e.p.	(e) 4.50	(h) 4.25
N. LA. (For shipment to La. & Ark.)		
U. S. Motor: (Octane L-3)		
62 oct. & below	(e) 4.375	(h) 4.25 –4.375
63-66 oct.	(e) 4.625	(e) 4.50 –4.625
67-69 oct.	(e) 4.875	(e) 4.75 –4.875
70-72 oct.	(e) 5.25	(e) 5.125–5.375
ARKANSAS (F.o.b. Ark. plant of one refiner, for shipment to Ark. & La.)		
U. S. Motor: (Octane L-3)		
62 octane & below	4.625	4.625
67-69 oct.	5.125	5.00
OHIO (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances)		
70-72 octane	7.375	7.375

(Continued on next page)

(a) Prices FOB. Central Michigan refinery group basis, for shipment within Mich. Shipments may originate at plants outside Central group. (b) For shipment to Texas and New Mexico destinations; Group 3 prices quoted for northern shipment. (c) Excluding Detroit shipment. (e) One refiner quoting. (f) Two suppliers quoting. (g) To resellers holding licenses. (h) Two refiners quoting. (i) No quotations reported. (j) Prices discontinued.

MID-WESTERN TANK CAR MARKET

Prices in this Midwestern Tank Car Market table are gathered from refiners and tank car marketers or brokers from their offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight rate basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Generally when prices are quoted in this Chicago market, the origin of the material is not known at the time the quotation is given, oftentimes even with the quoting refiners who have refineries in more than one refining district. All other gasoline prices are given by and for the particular refining district where the material is made and from which it is shipped.

Gasoline

Prices Effective	Aug. 21	Aug. 14
U. S. Motor: (Octane L-3)		
62 oct. and below	4.25 – 4.625	3.75 – 4.50
63-66 oct.	(c) 4.50	3.875– 4.50
67-69 oct.	4.75 – 5.00	4.125– 4.875
70-72 oct.	5.00 – 5.25	4.50 – 5.25

Kerosine

41-43 gravity, w.w.	3.125– 4.00	3.00 – 4.00
42-44 gravity, w.w.	3.25 – 4.25	3.25 – 4.25

Fuel and Gas Oils

Prices Effective	Aug. 21	Aug. 14
No. 1 p.w.	3.00 – 3.75	3.00 – 3.75
No. 1 straw	2.75 – 3.25	2.75 – 3.375
No. 2 straw	2.75 – 3.25	2.75 – 3.25
No. 3	2.75 – 3.125	2.625– 3.125
No. 5	$0.65	$0.65
No. 6	$0.35 –$0.45	$0.35 –$0.45
U. G. I. gas oil	(i)	(i)
Range oil	3.00 – 3.875	3.00 – 3.875

Chicago Naphtha and Solvent

Prices Effective	Aug. 21	Aug. 14
(FOB Group 3 as quoted by two Chicago sellers)		
Stoddard solvent	5.875	5.875
Cleaners' naphtha	6.375	6.375
V. M. & P. naphtha	6.375	6.375
Mineral spirits	5.375	5.375
Rubber solvent	6.375	6.375
Lacquer diluent	7.375	7.375

Daily range of gasoline prices as reported in PLATT'S OILGRAM (Week Ended Aug. 18, 1939)

	Aug. 14	Aug. 15	Aug. 16	Aug. 17	Aug. 18
U. S. Motor, (Octane Number determined according to L-3 Method in Okla., Texas and Mid-Western Districts):					
62 octane and below:					
Oklahoma	4.125– 4.625	4.125– 4.625	4.25 – 4.625	4.25 – 4.625	4.25 – 4.625
(a) North Texas	4.25 – 4.50	4.25 – 4.50	(c) 4.25 –4.50	(c) 4.25 –4.50	(c) 4.25 –4.50
West Texas	(c) 4.25 –4.50	(c) 4.25 –4.50	(c) 4.375–4.875	(c) 4.375–4.875	(c) 4.50 –4.875
Mid-Western (Group 3 basis)	3.75 – 4.50	3.625– 4.50	3.625– 4.50	3.75 – 4.50	4.25 – 4.50
63-66 octane:					
Oklahoma	4.50 – 4.875	4.50 – 4.875	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
(a) North Texas	4.625– 5.00	4.625– 5.00	(b) 4.625–4.75	(b) 4.625–4.75	(b) 4.625–4.75
West Texas	(b) 4.75	(b) 4.75	(b) 4.75 –5.25	(c) 4.75 –5.25	(c) 4.875–5.25
Mid-Western (Group 3 basis)	3.875– 4.50	3.875– 4.50	3.875– 4.50	4.00 – 4.50	(b) 4.50
67-69 octane:					
Oklahoma	4.625– 5.125	4.625– 5.125	4.625– 5.125	4.625– 5.125	4.75 – 5.125
(a) North Texas	4.75 – 5.00	4.75 – 5.00	(c) 4.75 –5.00	(c) 4.75 –5.00	(c) 4.75 –5.00
West Texas	(c) 5.00	(c) 5.00	(c) 5.00 –5.50	(c) 5.00 –5.50	(c) 5.125–5.50
Mid-Western (Group 3 basis)	4.125– 4.875	4.125– 4.875	4.125– 4.875	4.25 – 4.875	4.75 – 5.00
70-72 octane:					
Oklahoma	5.00 – 5.375	5.00 – 5.375	5.00 – 5.50	5.00 – 5.50	5.00 – 5.50
(a) North Texas	5.00 – 5.50	5.00 – 5.50	(c) 5.00 –5.375	(c) 5.00 –5.375	(c) 5.00 –5.375
West Texas	(b) 5.25	(b) 5.25	(c) 5.25 –5.75	(c) 5.25 – 5.75	(c) 5.375–5.75
East Texas	(c) 4.625–4.75	(c) 4.625	.....	.....	(b) 5.00
Mid-Western (Group 3 basis)	4.50 – 5.25	4.50 – 5.25	4.50 – 5.25	4.50 – 5.25	4.50 – 5.25
Motor Gasoline, 60-64 octane:					
New York harbor	5.75 – 6.15	5.75 – 6.15	5.75 – 6.15	5.75 – 6.15	5.75 – 6.15
Philadelphia district	5.75 – 6.50	5.75 – 6.50	5.75 – 6.50	5.75 – 6.50	5.75 – 6.50
Baltimore district	(b) 5.75	(b) 5.75	(b) 5.75	(b) 5.75	(b) 5.75
Motor Gasoline, 65 octane & above:					
New York harbor	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Philadelphia district	6.00 – 7.00	6.00 – 7.00	6.00 – 7.00	6.00 – 7.00	6.00 – 7.00
Baltimore district	6.00 – 7.25	6.00 – 7.25	6.00 – 7.25	6.00 – 7.25	6.00 – 7.25
U. S. Motor, 58-62°:					
Bradford-Warren (Western Penna.)	(c) 4.625	(c) 4.625	(c) 4.625	(c) 4.625	(c) 4.625
Other districts (Western Penna.)	4.50	4.50	4.50	4.50	4.50
Motor Gasoline, Min. 65 octane:					
Bradford-Warren (Western Penna.)	(c) 6.25 –6.50	(c) 6.25 –6.50	(c) 6.25 –6.50	(c) 6.25 –6.50	(c) 6.25 –6.50
"Q" Gasoline:					
Bradford-Warren (Western Penna.)	(c) 6.25 –6.50	(c) 6.25 –6.50	(c) 6.25 –6.50	(c) 6.25 –6.50	(c) 6.25 –6.50
Other Districts (Western Penna.)	6.00	6.00	6.00	6.00	6.00

(a) For shipment to Texas and New Mexico destinations: Group 3 prices are quoted on northern shipment. (b) One refiner quoting. (c) Two refiners quoting. (d) No quotations reported.

REFINERY TANK CAR MARKETS

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). Prices in cents per gallon except heavy fuel oils in dollars per barrel of 42 gallons, tank car lots, FOB refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included, unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.

Natural Gasoline

(Prices to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

Prices Effective	Aug. 21	Aug. 14
FOB GROUP 3		
Grade 26-70	(l)4.00	(l)3.00
FOB BRECKENRIDGE		
Grade 26-70	(m) 3.75 –4.00	(l)3.00
CALIFORNIA (F.o.b. plants in Los Angeles basin) 75-85, 350-375 e.p. for blending	5.60 – 6.00	5.50 – 6.00

Kerosine

WESTERN PENNA. REFINERY QUOTATIONS		
Bradford-Warren:		
45 gravity w.w.	4.875	4.875
46 gravity w.w.	(e)5.375	(e)5.375
Other districts:		
45 gravity w.w.	4.75 – 5.00	4.75 – 5.00
46 gravity w.w.	(h) 5.00 –5.125	(h) 5.00 –5.125
47 gravity w.w.	5.00 – 5.25	5.00 – 5.25
CENTRAL MICHIGAN (a)		
47-49 gravity w.w.	4.50 – 5.00	4.50 – 5.00
OKLAHOMA		
41-43 gravity w.w.	3.50 – 4.25	3.625– 4.25
42-44 gravity w.w.	3.625– 4.625	3.75 – 4.625
KANSAS (For Kansas destinations only)		
41-43 gravity w.w.	(e)4.125	(e)4.125
42-44 gravity w.w.	(e) 4.375	4.125– 4.50
N. TEX. (b)		
41-43 gravity w.w.	(h)4.00	3.75 – 4.25
N. LA. (For shipment to La. and Ark.)		
41-43 gravity w.w.	(e) 3.75 –4.00 (h) 3.75 –4.125	
ARK. (F.o.b. Ark. plant of one refiner for shipment to Ark. and La.)		
41-43 gravity w.w.	4.25	4.25
CALIFORNIA		
40-43 gravity w.w.	4.50 – 6.00	5.00 – 6.00

Gas *and* Fuel Oils

WESTERN PENNA. REFINERY QUOTATIONS		
Bradford-Warren:		
36-40 gravity	(e)4.625	(e)4.625
Other districts: (Excluding Pittsburgh District Prices)		
36-40 gravity	4.25	4.25
CENTRAL MICHIGAN (a)		
P.W. Distillate	4.25 – 4.50	4.00 – 4.50
No. 3 gas oil, Str.	3.75 – 4.25	3.75 – 4.25
U.G.I. gas oil	3.50 – 4.00	3.50 – 4.00
Fuel Oils (Vis. at 100):		
500-700 Vis.	(e)2.75	(e)2.75
300-500 Vis.	(e) 2.75 –3.00	(e) 2.75 –3.00
100-300 Vis.	(e) 3.00 –3.25	(e) 3.00 –3.25
OKLAHOMA		
No. 1 prime white	3.25 – 3.75	3.125– 3.875
No. 1 straw	(e)3.25	(e)3.375
No. 2 straw	3.25 – 3.375	3.25 – 3.375
No. 2 dark	(e)3.25	(h) 2.75 –3.25
U.G.I. gas oil	(n)	(h) 3.00 –3.25
28-30 gravity fuel oil	(n)	(e)3.25
28-30 gravity zero fuel	2.75 – 3.125	2.50 – 3.25
24-26 gravity fuel	(n)	(e) $0.85–$0.90
14-16 gravity fuel	(n)	$0.70
No. 6 fuel	(n)	(e)$0.45
Range oil	3.375– 3.50	(h) 3.50 –3.625
KANSAS (For Kans. destinations only).		
No. 1 p.w. fuel oil	(e)3.875	3.75 – 3.875
10-14 gravity fuel oil	(e)$0.45	$0.45 –$0.80
N. TEX. (b)		
No. 1 Prime white	(h)3.75	(e)3.75
N. LA. (For shipment to La. and Ark.)		
20-24 gravity fuel	(e) $0.95–$1.05	(e) $0.95–$1.05
16-20 gravity fuel	(e) $0.75–$0.85	(e) $0.75–$0.85
10-14 gravity fuel	(e) $0.65–$0.75	(e) $0.65–$0.75
ARK. (F.o.b. Ark. plant of one refiner, for shipment to Ark. and La.)		
No. 2 fuel	3.375	3.375
28-30 gravity gas oil, zero	3.125	3.125
Tractor Fuel	(j)4.50	(j)4.50

Prices Effective	Aug. 21	Aug. 14
CALIFORNIA		
San Joaquin Valley:		
Heavy fuel	$0.55 –$0.75	$0.55 –$0.75
Light fuel	$0.75 –$0.85	$0.75 –$0.85
Diesel fuel (per gal.)	2.75 – 4.00	2.75 – 4.00
Stove dist. (per gal.)	3.00 – 5.00	3.00 – 5.00
Los Angeles:		
Heavy fuel	$0.50 –$0.90	$0.55 –$0.90
Light fuel	$0.60 –$1.00	$0.65 –$1.00
Diesel fuel (per gal.)	2.25 – 4.00	2.25 – 4.00
Stove dist. (per gal.)	2.25 – 5.00	2.25 – 5.00
San Francisco:		
Heavy fuel	$0.95	$0.95
Light fuel	$1.05	$1.05
Diesel fuel (per gal.)	4.50	4.50
Stove dist. (per gal.)	5.50	5.50

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Neutral Oils

WESTERN PENNA. REFINERY QUOTATIONS

Viscous Neutrals No. 3 col. (Viscosity at 70° F.)

200 Vis. (180 at 100°) 420-425 fl.		
0 p.t.	(h)21.00	20.00 –20.50
10 p.t.	(h)20.00	19.00 –19.50
15 p.t.	(h)19.50	18.50 –19.00
25 p.t.	17.50 –18.00	17.00 –17.50
150 Vis. (143 at 100) 400-405 fl.		
0 p.t.	(h) 19.00–19.50	19.00 –19.50
10 p.t.	(h) 18.00–18.50	18.00 –18.50
15 p.t.	(h) 17.00–17.50	17.00 –17.50
25 p.t.	15.50 –16.50	15.00 –16.00

SOUTH TEXAS

Vis. Color		
Pale Oils: (*Vis. at 100°F.*)		
100 No. 1½-2½	4.50 – 5.00	4.50 – 5.00
200 No. 2-3	6.00	6.00
300 No. 2-3	6.50	6.50
500 No. 2½-3½	7.50	7.50
750 No. 3-4	8.00	8.00
1200 No. 3-4	8.375– 8.50	8.375– 8.50
2000 No. 4	8.50 – 9.00	8.50 – 9.00
Red Oils:		
200 No. 5-6	6.00	6.00
300 No. 5-6	6.50	6.50
500 No. 5-6	7.50	7.50
750 No. 5-6	8.00	8.00
1200 No. 5-6	8.375– 8.50	8.375– 8.50
2000 No. 5-6	8.50 – 9.00	8.50 – 9.00

Note: Red oil prices cover oils with green cast; blue cast red oils are slightly lower in some cases.

MID-CONTINENT (Vis. at 100° F.; F.o.b. Tulsa basis).

Pale Oils: (0 to 10 P.P.) Vis. Color		
60-85—No. 2	5.50	5.50
86-110—No. 2	6.00	6.00
150—No 3	9.00	9.00
180—No. 3	9.25 –10.00	9.25 –10.00
200—No. 3	9.75 –10.50	9.75 –10.50
250—No. 3	10.75 –11.50	10.75 –11.50
280—No. 3	12.50	12.50
300—No. 3	13.00	13.00
Red Oils:		
180—No. 5	(e)9.00	(e)9.00
200—No. 5	8.75 – 9.50	8.75 – 9.50
280—No. 5	(h) 11.50–11.75	(h) 11.50–11.75
300—No. 5	(h) 11.75–12.00	(h) 11.75–12.00

Note: The following oils, of 15 to 25 p.p., are generally quoted these amounts under 0-10 p.p.; viscous oils, 0.5c; non-viscous, 0.25c. Viscous oils (150-300 vis.), No. 4 color, generally are quoted 0.5c above No. 5 color oils.

CHICAGO (Vis. at 100° F.)

(e) Pale Oils 0 to 10 p.p. Vis. Color		
60-85—No. 2	7.25	7.25
86-110—No. 2	7.75	7.75
150—No. 3	9.00	9.00
180—No. 3	10.00	10.00
200—No. 3	10.50	10.50
250—No. 3	11.50	11.50

Prices Effective	Aug. 21	Aug. 14
CHICAGO (Continued)		
(e) Red Oils:		
180—No. 5	9.00	9.00
200—No. 5	9.50	9.50
250—No. 5	10.50	10.50
280—No. 5	11.50	11.50
300—No. 5	11.75	11.75

Note: Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., 0.25c lower. To obtain delivered prices in Chicago, add 0.25c per gal.

Cylinder Stocks

MID-CONTINENT (F.o.b. Tulsa basis)

Bright Stocks:		
190-200 Vis. at 210° D.	(e)19.00	(e)19.00
150-160 Vis. at 210° D:		
0 to 10 p.p.	14.25 –16.00	14.25 –16.00
10 to 25 p.p.	13.50 –15.00	13.50 –15.00
25 to 40 p.p.	(h) 13.25–13.50	(h) 13.25–13.50
150-160 vis. at 210° E.	12.50 –14.50	12.50 –14.50
120 Vis. at 210° D:		
0 to 10 p.p.	(h) 13.75–14.50	(h) 13.75–14.50
25 to 40 p.p.	(e)12.75	(e)12.75
600 S.R. Dark Green	(e)5.50	(e)5.50
600 S.R. Olive Green	(h) 7.00 –7.50	(h) 7.00 –7.50
631 S.R.	(e)12.50	(e)12.50
Black Oil	(h) 3.50 –4.00	(h) 3.50 –4.00

(e) CHICAGO (Viscosity at 210°)

Unfiltered Steam Refined:		
140	9.00	9.00
160	10.00	10.00
200	11.00	11.00
Bright stocks, 160 vis. at 210. No. 8 color:		
0 to 10 p.p.	15.75	15.75
15 to 25 p.p.	14.75	14.75
30 to 40 p.p.	14.25	14.25
E filtered Cyl. Stock	13.50	13.50

Note: To obtain prices delivered in Chicago, add 0.25c per gal.

WESTERN PENNA. REFINERY QUOTATIONS		
600 S.R. filterable	8.00 – 9.00	8.00 – 9.00
650 S.R.	10.00 –11.00	10.00 –11.00
600 fl.	10.50 –12.00	10.50 –12.00
630 fl.	13.00 –14.00	13.00 –14.00
Bright stock, 145-155 vis. at 210°, 540-550 flash, No. 8 color:		
10 p.t.	19.00 –20.00	19.00 –20.00
15 p.t.	18.00 –19.00	18.00 –19.00
25 p.t.	16.00 –17.50	16.00 –17.00

Petrolatums

WESTERN PENNA. (In bbls., carloads; in tank cars, 0.5c per lb. less. One refiner reports he equalizes freight with nearest refinery to destination).		
Snow White	5.875– 6.125	5.875– 6.125
Lily White	4.875– 5.125	4.875– 5.125
Cream White	3.875– 4.125	3.875– 4.125
Light Amber	2.50	2.50
Amber	2.25	2.25
Red	(e)2.125	(e)2.125

Wax

WESTERN PENNA. REFINERY QUOTATIONS In bbls., carloads, New York.		
122-124 A.m.p., w.c. scale	(h) 2.85 –2.90	(h) 2.85 –2.90
124-126 A.m.p., w.c. scale	(h) 2.85 –2.90	2.85 – 2.90
OKLAHOMA (In bbls. or burlap bags, carloads)		
124-126 A.m.p., w.c. scale	(h)3.00	(h)3.00

CHICAGO (FOB Chicago district refinery of one refiner, in bags or slabs loose, carloads. Melting points are E.M.P. (A.S.T.M.) methods; add 3° F. to convert into A.m.p.)

Fully refined:		
122-124 (bags only)	3.90	4.25
125-127	4.00	4.35
127-129	4.35	4.70
130-132	4.65	5.00
132-134	4.65	5.25
135-137	5.65	6.00

(a) Prices FOB. Central Michigan refinery group basis, for shipment within Mich. Shipments may originate at plants outside Central group. (b) For shipment to Texas and New Mexico destinations: Group 3 prices quoted on northern shipments. (c) Excluding Detroit shipment. (e) One refiner quoting. (f) No quotations reported. (g) To resellers holding licenses. (h) Two refiners quoting. (j) For shipment to Ark. points only. (k) Two suppliers quoting. (l) Quotations. (m) Sales. (n) No quotations reported.

TANK WAGON MARKETS

Tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes**; *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes, where levied, are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for March 29, April 12, April 19 and June 7, 1939, or write to NPN. These prices in effect Aug. 21, 1939, as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. New Jersey

Essolene
(*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
*Atlantic City, N. J.	6.9	8.7	4	7
*Newark, N. J.	6.9	8.7	4	7
Annapolis, Md.	7.85	9.35	5	8
Baltimore, Md.	7.25	8.75	5	8
Cumberland, Md.	8.65	11.15	5	10
Washington, D. C.	7.5	9	3	9.5
Danville, Va.	8.45	10.95	6	12.9
Norfolk, Va.	7.25	9.75	6	10.5
Petersburg, Va.	7.55	10.05	6	11.7
Richmond, Va.	7.55	10.05	6	10.7
Roanoke, Va.	8.75	11.25	6	11
Charleston, W. Va.	8.05	10.55	6	12.6
Parkersburg, W. Va.	7.35	9.35	6	11.2
Wheeling, W. Va.	8.35	10.25	6	12.2
Charlotte, N. C.	8.4	10.9	7	11.8
Hickory, N. C.	8.95	11.45	7	12.3
Mt. Airy, N. C.	8.8	11.3	7	12.2
Raleigh, N. C.	8.15	10.65	7	11.5
Salisbury, N. C.	8.45	10.95	7	11.9
Charleston, S. C.	7.25	9.75	7	10.6
Columbia, S. C.	8.1	10.6	7	11.5
Spartanburg, S. C.	8.8	11.3	7	12.2

Discount to undivided dealers: thru territory, except New Jersey points, which see in "Note" below: Dealer t.w. price less 0.5c per gal.

*Effective Dec. 1, 1938, S. O. New Jersey posted a minimum retail resale price of 11.2c thru New Jersey, except Trenton area and Cumberland county.

Note: While the above posted prices continue at Atlantic City and Newark, N. J., dealers will pay a net price of 8.2c per gal. for Essolene. Dealers having pumps marked only Esso, Essolene and "Standard" White gasoline will pay 7.7c per gal. for Essolene.

Kerosine Discount: 1c off t.w. price or 25 gals., or more, under contract thru territory (Baltimore City contract not necessary) except no discount in state of New Jersey.

Socony-Vacuum Oil Co., Inc.

(*S. O. New York Division*)

Socony Mobilgas
(*Regular Grade*)

	Consumer Tank Car	"Split" Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Metropolitan N.Y. City: Boroughs of Manhattan, Bronx and Brooklyn (Kings and Queens)	6.6	8.5	*5	6.75
Borough of Richmond (Staten Is.)	6.6	8.5	*5	6.75
Albany, N. Y.	6.5	8.8	5	7
Binghamton, N. Y.	7.8	10	5	8
Buffalo, N. Y.	7.5	8.5	5	7.75
Jamestown, N. Y.	7	8.5	5	7.5
Plattsburg, N. Y.	7.1	9.6	5	7.5
Rochester, N. Y.	7.6	9	5	7.75
Syracuse, N. Y.	7.2	8.5	5	7.25
Danbury, Conn.	7.3	9	4	7.75
Hartford, Conn.	6.9	9	4	6.50
New Haven, Conn.	6.8	8.25	4	6
Bangor, Me.	6.9	9.2	5	7
Portland, Me.	6.5	8.5	5	6.75
Boston, Mass.	6.5	8.25	4	6.5
Concord, N. H.	7.3	9.6	5	7.5
Lancaster, N. H.	8.1	10.6	5	8.5
Manchester, N. H.	7.2	8.2	5	7.25
Providence, R. I.	6.5	8.3	4	6.5
Burlington, Vt.	7	8.5	5	7.25
Rutland, Vt.	7.4	8.5	5	7.5

*Plus 2% city sales tax computed at time of each sale.

Discount to undivided dealers: 0.5c less than "split" dealer t.w.

Atlantic Refining

Atlantic White Flash Gasoline
(*Regular Grade*)

	Commercial Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Philadelphia, Pa.	7	8.5	5	10
Pittsburgh	8	9.5	5	10.5
Allentown	7.5		5	10.5
Erie	8	9.5	5	10
Scranton	8	9.5	5	10.5
Altoona	8	10	5	10.5
Harrisburg	7.5	9	5	10.5
Williamsport	8	9.5	5	10.5
Dover, Del.	...	9	5	10.5
Wilmington	...	8.5	5	9.75
Boston, Mass.	...	8.25	4	6.25
Springfield, Mass.	...	8.5	4	6
Worcester, Mass.	...	8.5	4	7
Fall River, Mass.	...	8	4	7
Hartford, Conn.	...	9	4	6.5
New Haven, Conn.	...	8.25	4	7
Providence, R. I.	...	8.3	4	6.5
Atlantic City, N. J.	...	8.2	4	7
Camden, N. J.	...	8.1	4	7
Trenton, N. J.	...	8.2	4	7
Annapolis, Md.	...	9.35	5	9.5
Baltimore, Md.	...	8.75	5	8
Hagerstown, Md.	...	9.85	5	10
Richmond, Va.	...	10.05	6	10.7
Wilmington, N. C.	...	9.85	7	10.8
Brunswick, Ga.	...	7.5	7	*10.5
Jacksonville, Fla.	...	8	8	10

*Georgia has kerosine tax of 1c per gal., not included in above price.

Discount to undivided dealers: Dealer t.w. less 0.5c per gal. except in Georgia and Florida, dealer t.w. and undivided dealer price is same.

Discounts: At Scranton, Pa., 1c per gal. voluntary discount allowed to dealers only, effective July 8, 1939.

Kerosine discount: Thru Pennsylvania and Delaware, 2c per gal. off t.w. price on t.w. deliveries of 25 gals. or more at one time, effective since Oct. 29, 1936.

S. O. Ohio

Sohio X-70 Gasoline
(Regular Grade)

	Consumer T.W.	†Divided Dlr.	‡S.S.	Gasoline Taxes	Kerosine T.W.
Ohio, Statewide	10.5	9.5	12.5	5	*12
Akron	10.5	8.5	10.5	5	*8.5
Cincinnati	10.5	9	11.5	5	*12
Cleveland	10.5	9.5	12.5	5	*12
Columbus	10.5	9	11.5	5	*12
Dayton	10.5	9	11.5	5	*12
Marietta	10.5	9	11.5	5	*12
Portsmouth	10.5	9.5	12.5	5	*12
Toledo	10.5	8.5	11	5	*12
Youngstown	10.5	9	11.5	5	*11.5

Renown Gasoline
(Third Grade)

Ohio, Statewide	10.5	9.5	12.5	5	....
Akron	10.5	8.5	10.5	5	....
Cincinnati	10.5	9	11.5	5	....
Cleveland	10.5	9.5	12.5	5	....
Columbus	10.5	9	11.5	5	....
Dayton	10.5	9	11.5	5	....
Marietta	10.5	9	11.5	5	....
Portsmouth	10.5	9.5	12.5	5	....
Toledo	10.5	8.5	11	5	....
Youngstown	10.5	9	11.5	5	....

Note: Prices at other Ohio points may be obtained by writing NPN.

*Ohio has kerosine tax of 1c per gal., not included in above prices.

†This price also to authorized agents, exclusive of 0.5c rental.

‡Prices are at company-operated service stations.

Discount to undivided dealers: 0.5c less than divided dealer t.w.

S. O. Kentucky

Crown Gasoline
(*Regular Grade*)

	Consumer T.W.	Net Dlr.	Gasoline Taxes	Kerosine T.W.
Covington, Ky.	11.5	8.5	6	9.5
Lexington, Ky.	13.5	10.5	6	10
Louisville, Ky.	12.5	9.5	6	9
Paducah, Ky.	12	9	6	9
Jackson, Miss.	12	9	7	*9
Vicksburg, Miss.	12	9	7	*8.5
Birmingham, Ala.	13	10	*8	8.5
Mobile, Ala.	12	9	*9	8.5
Montgomery, Ala.	13	10	*9	*9.5
Atlanta, Ga.	13.5	10.5	7	*8
Augusta, Ga.	13	10	7	*8
Macon, Ga.	13.5	10.5	7	*9
Savannah, Ga.	12	9	7	*7
Jacksonville, Fla.	12	9	8	8
Miami, Fla.	11.5	8.5	8	8
Pensacola, Fla.	12	9	*9	8
Tampa, Fla.	12	9	8	7.5

Kyso Gasoline
(*Third Grade*)

Covington, Ky.	10	7.5	6	....
Lexington, Ky.	12	9.5	6	....
Louisville, Ky.	11	8.5	6	....
Paducah, Ky.	10	7.5	6	....
Jackson, Miss.	10.5	8	7	....
Vicksburg, Miss.	10.5	8	7	....
Birmingham, Ala.	11	8.5	*8	....
Mobile, Ala.	9.5	7	*9	....
Montgomery, Ala.	11	8.5	*9	....
Atlanta, Ga.	11.5	9	7	....
Augusta, Ga.	11	8.5	7	....
Macon, Ga.	11.5	9	7	....
Savannah, Ga.	10	7.5	7	....
Jacksonville, Fla.	10.5	8	8	....
Miami, Fla.	9.5	7	8	....
Pensacola, Fla.	10.5	8	*9	....
Tampa, Fla.	10.5	8	8	....

Discounts to all tank wagon consumers: Effective Jan. 4, 1937, thru territory, on Crown gasoline, 3c per gal. below consumer t.w. price; on Kyso, 2.5c below, regardless of quantity purchased, per month

**Taxes*: In the tax column is included these city and county gasoline taxes at the following points: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Montgomery, Ala. have kerosine taxes of 1c per gal., and Mississippi 0.5c, not included in above prices.

S. O. Indiana

Red Crown (*Regular Grade*)
Stanolind (*Third Grade*)

	Red Crown Cons. T.W.	Dealer Prices Red Crown	Stanolind	Gasoline Taxes	Kerosine T.W.
Chicago, Ill.	11.1	9.1	6.9	4	10
Decatur, Ill.	11.1	9.6	8.2	4	10
Joliet, Ill.	11.1	9.6	8.1	4	10
Peoria, Ill.	11.1	9.6	9.1	4	10
Quincy, Ill.	10.9	9.4	8.9	4	9.8
Indianapolis, Ind.	11.8	10.3	8.9	5	*10.7
Evansville, Ind.	11.6	10.1	9.6	5	*10.5
South Bend, Ind.	12.1	10.6	9.6	5	*10
Detroit, Mich.	9.6	8.1	7.6	4	7.1
Grand Rapids, Mich.	10	8.5	8	4	9.7
Saginaw, Mich.	11.8	9.3	8.6	4	9.3
Green Bay, Wis.	11.9	10.4	9.9	5	10
Milwaukee, Wis.	11.3	9.8	9.3	5	10.2
La Crosse, Wis.	11.5	10	9.5	5	10.4
Minneapolis-St. Paul	11.5	10	9.5	5	10.4
Duluth, Minn.	11.9	10.4	9.9	5	10.8
Mankato, Minn.	11.5	10	9.5	5	9.4
Des Moines, Ia.	10.9	9.4	8.9	4	*9.8
Davenport, Ia.	11.1	9.6	8.4	4	*10
Mason City, Ia.	11.3	9.8	6.9	4	*10.2
St. Louis, Mo.	10.7	9.2	8	*4	8
Kansas City, Mo.	10.4	8.9	6.9	*4	8
St. Joseph, Mo.	10.4	8.9	8.4	4	7.9
Fargo, N. D.	12.7	11.2	10.7	5	11.6
Huron, S. D.	12	10.5	10	5	10.9
Wichita, Kans.	9.9	6.6	5.5	4	7.4

*Taxes: in the tax column is included these city and state gasoline taxes at following points: Kansas City, St. Joseph and St. Louis, 1c city tax. Kerosine taxes: Indiana has 4c, Iowa 3c per gal. state tax, not included in above prices.

S. O. Nebraska

Standard Red Crown Gasoline
(*Regular Grade*)

	T.W.	Dealer	Gasoline Taxes	Kerosine T.W.
Omaha, Neb.	11.5	10	6	10.3
McCook	10.5	6 9	6	9
Norfolk	11	9 9	6	9
North Platte	12.3	10 8	6	11.1
Scottsbluff	12	9	6	11

S. O. Louisiana

Essolene
(*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Little Rock, Ark.	7.25	9.75	7.5	10
Alexandria, La.	6.75	9.25	8	*11.5
Baton Rouge, La.	6.75	9.25	8	*9.5
New Orleans, La.	6.75	9.25	*10	*9
Lake Charles, La.	6.75	9.25	8	*11.5
Shreveport, La.	5.5	8	8	*10
Lafayette, La.	7	9.5	8	*10
Bristol, Tenn.	10.25	9	8	13
Chattanooga, Tenn.	9.5	11.5	8	12
Knoxville, Tenn.	10	12.5	8	14.5
Memphis, Tenn.	8	10.5	8	11
Nashville, Tenn.	9	11.5	8	12

*Taxes: New Orleans gasoline tax includes 7c state, 1c federal, and 2c parish tax. Louisiana has kerosine tax of 1c per gal.; in addition New Orleans has 1c parish tax, none of which are included in above prices.

Price basis to dealers: Undivided dealers get dealer price, less 0.5c.

Above prices include these inspection fees on both gasoline and kerosine unless otherwise specified, per gallon, figured on basis of 50 gallons per barrel:
Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel, 1/20c per gal. in bulk; Florida 1/8c; Illinois, 3/100c; Indiana, 1/5c per gal. in lots up to 25 bbls.; 2/25c per gal. in lots of 25 bbls. or more; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 1/25c; Missouri, 3/100c; Nebraska, 3/100c; Nevada, gasoline, 1/20c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal. lots of more than 50, in bbls., 1/5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 3/100c.
Kerosine inspection fee only: Iowa, 3/50c; Michigan, 1/5c per gal.

TANK WAGON MARKETS

Tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes: also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes: kerosine taxes, where levied, are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for March 29, April 12, April 19 and June 7, 1939, or write to NPN. These prices in effect Aug. 21, 1939, as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

Humble Oil & Refining Co.

Humble Motor Fuel
(Regular Grade)

	*T.W.	S.S.	Gasoline Taxes	Kerosine T.W.
Dallas, Tex	9	13	5	8
Ft. Worth, Tex	9	13	5	7
Houston, Tex	9	13	5	8
San Antonio, Tex	9	13	5	8

Thriftane
(Leaded, 67 Octane, Purple Gasoline)

Dallas	7.5	11	5	
Ft. Worth	7.5	11	5	
Houston	8	11	5	
San Antonio	8	11	5	

U. S. Motor Gasoline
(Third Grade)

Dallas, Tex	7	..	5	
San Antonio, Tex	7	..	5	

*These tank wagon prices apply to all classes of dealers and consumers.

Continental Oil

Conoco Bronz-z-z (Regular Grade)

	††T.W.	Dealer	Gasoline Taxes	Kerosine ‡T.W.
Denver, Col	9	..	5	11.5
Grand Junction, Col	13.5	..	5	15
Pueblo, Col	11	..	5	9
Casper, Wyo	12.5	..	5	11.5
Cheyenne, Wyo	10.5	..	5	13
Billings, Mont	12.5	..	6	13
Butte, Mont	14	..	6	15.5
Great Falls, Mont	13.5	..	6	15.5
Helena, Mont	14.5	..	6	15.5
Salt Lake City, Utah	12.5	12.5	5	16
Boise, Ida	**14.6	*14.6	6	18
Twin Falls, Ida	**15.1	**15.1	6	18
Albuquerque, N. M	10.5	10.5	†6.5	10
Roswell, N. M	9	9	†6.5	8
Santa Fe, N. M	10.5	10.5	*7	10
Ft. Smith, Ark	9	..	5	7.5
Little Rock, Ark	9.25	..	7.5	8
Texarkana, Ark	9	..	5	8
Muskogee, Okla	8	..	5	7
Oklahoma City, Okla	7	..	5	6.5
Tulsa, Okla	8	..	5	7

Demand Gasoline
(Third Grade)

Denver, Col	8	..	5	....
Grand Junction, Col	12.5	..	5	....
Pueblo, Col	10	..	5	....
Casper, Wyo	11.5	..	5	....
Cheyenne, Wyo	9.5	..	5	....
Billings, Mont	11.5	..	6	....
Butte, Mont	11	..	6	....
Great Falls, Mont	10.5	..	6	....
Helena, Mont	13.5	..	6	....
Salt Lake City, Utah	11.5	11.5	5	....
Boise, Ida	**13.6	**13.6	6	....
Twin Falls, Ida	**14.1	**14.1	6	....
Albuquerque, N. M	8.5	8.5	†6.5	....
Roswell, N. M	8	8	†6.5	....
Santa Fe, N. M	9.5	9.5	*7	....
Ft. Smith, Ark	6.5	..	5	....
Little Rock, Ark	7	..	7.5	....
Texarkana, Ark	6.5	..	5	....
Muskogee, Okla	7	..	5	....
Oklahoma City, Okla	6.5	..	5	....
Tulsa, Okla	7	..	5	....

†Includes city tax of 0.5c.
*Includes 1c city tax.
‡Prices are in t.w. deliveries to consumers and dealers.
**Prices include 0.1c to cover 1-mill tax for toll bridges.
††T.w. prices in all states except Utah, Idaho and New Mexico are to consumers and dealers.

S. O. California

Standard Gasoline
(Regular Grade)

	T.W.	S.S.	Gasoline Taxes	Kerosine T.W.
San Francisco, Cal	13.5	14.5	4	11.5
Los Angeles, Cal	13	14	4	10
Fresno, Cal	14.5	15.5	4	12.5
Phoenix, Ariz	14	15	6	*12.5
Reno, Nev	15.5	16.5	5	13.5
Portland, Ore	14	15	6	13.5
Seattle, Wash	14	15	6	†13.5
Spokane, Wash	15.5	16.5	6	†16.5
Tacoma, Wash	14	15	6	†13.5

Flight Gasoline
(Third Grade)

San Francisco, Cal	12	13	4	....
Los Angeles, Cal	11.5	12.5	4	....
Fresno, Cal	13	14	4	....
Reno, Nev	14	15	5	....
Phoenix, Ariz	11	12	6	....
Portland, Ore	12.5	13.5	6	....
Seattle, Wash	12.5	13.5	6	....
Spokane, Wash	13	14	6	....
Tacoma, Wash	12.5	13.5	6	....

*Arizona has kerosine tax of 5c per gal., not included in above prices.

†Washington has 0.25c per gal. tax on kerosine sales, not included in above prices.

Discount to 100% dealers, thru territory, off posted t.w. prices, on gasolines: on Standard Ethyl, Standard Gasoline and Stanavo Aviation, 3c per gal.; on Flight gasoline, 2c.

Canada

PRICES OF IMPERIAL OIL LTD.
Per Imperial Gallon, which is 1.2 U. S. Gallons
3-Star Imperial Gasoline
(Regular Grade)

	T.W.	Gasoline Taxes	Kerosine T.W.
Hamilton, Ont	15	8	15.5
Toronto, Ont	15	8	15.5
Brandon, Man	21	7	22
Winnipeg, Man	19.5	7	20.5
Regina, Sask	19	7	21
Saskatoon, Sask	21.3	7	23.3
Edmonton, Alta	19.4	7	21.4
Calgary, Alta	16.5	7	18.5
Vancouver, B. C	16	7	23
Montreal, Que	14	8	14.5
St. John, N. B	13.5	10	17.5
Halifax, N. S	13.5	10	17.5

Discounts to undivided dealers, 1c off t.w. price, except Maritime Provinces where undivided dealers pay t.w. price. Divided dealers pay t.w. price, thru territory.

Aviation Gasoline

Following are tank car, tank wagon or dealer prices, as indicated, of aviation gasoline in several marketing territories.

S. O. OHIO
Thru Ohio
Esso Aviation

	Consumer T.W.	Gasoline Taxes
74 octane	15.5	5
80 octane	16.5	5
87 octane	17.5	5

Discounts: For delivery on contract to hangar operators and resellers: 2c below consumer posted t.w. price, shown above.

S. O. INDIANA
Stanavo Ethyl Aviation Gasoline
73 Octane Number

Chicago, Ill	14.9	
Detroit, Mich	16.5	4
Milwaukee, Wis	15.1	5
Minneapolis, Minn	15.3	5
St. Louis, Mo	14.5	3
Kansas City, Mo	14.2	*4
Fargo, N. D	16.5	4
Huron, S. D	15.8	5

*Includes 1c city tax.

HUMBLE OIL & REFINING CO.
74 Octane Aviation Gasoline, Clear

	Tank Car
FOB Baytown, Tex	8.5

CONTINENTAL OIL CO.
Conoco Special Gasoline

	T.W. & Dealer Price	Gasoline Taxes
Denver, Colo	15	5
Cheyenne, Wyo	15.5	5
Helena, Mont	22.5	6
Salt Lake City, Utah	18	5
Albuquerque, N. M	14	*6.5

*Includes city tax of 0.5c.

S. O. CALIFORNIA
Stanavo Aviation Gasoline

	T.W.	
Phoenix, Ariz	17.5	6
Los Angeles, Cal	15	4
San Francisco, Cal	15.5	4
Reno, Nev	17.5	5
Portland, Ore	16	6
Seattle, Wash	16	6
Spokane, Wash	19	6

Note: For discounts, etc., see note under Standard and Flight gasoline above.

Naphtha (In Tank Wagon)

S. O. NEW JERSEY

	Posted Tank Wagon Prices Mineral Spirits	V.M. & P.
Newark, N. J	11.5	15.5
Baltimore, Md	15.5	....
Washington, D. C	15	....

Discounts: Buyers taking following quantities at one time, get these discounts: Newark, 2c per gal. on 200 gals. or more; less than 200 gals., 0.5c higher price. Baltimore 2c off on 25 to 100 gals. and 3c on over 100 gals. Washington, 2c off to contract buyers.

SOCONY-VACUUM OIL CO.

Buffalo, N. Y	10.5	12
*New York City	9.5	10.5
Rochester, N. Y	12	12
Syracuse, N. Y	12	14.5
Boston, Mass	11	11
Bridgeport, Conn	11	11.5
Hartford, Conn	10.5	11
Providence, R. I	11	12

*Prices apply to consumers only in quantities over 1,000 gals. annually. For quantities under 1,000 gals. annually, add 0.5c per gal.

ATLANTIC REFINING CO.

Philadelphia, Pa	12	14.5
Lancaster, Pa	13.5	16
Pittsburgh, Pa	14.5	14.5

Note: Prices for Mineral Spirits also apply to Stoddard Solvent; and prices for V.M.&P. Naphtha apply also to Light Cleaners Naphtha.

Discounts: Philadelphia, 200 gals. or more at one time, 2c per gal. less. Lancaster, contract buyers taking 1,000 gals. or more per year, one drum up, 2c per gal. less; non-contract buyers, 200 gals. or more at one time, 2c per gal. less. Pittsburgh, 500 gals. or more at one time, 2c.

S. O. OHIO

	S.R. Solvent	V.M.&P. Naphtha
Thru Ohio	12.5	13.5

Note: V.M.&P. Naphtha prices also apply on Dry Cleaners naphtha and special Varnolene; Varnolene and Sohio Solvent 0.5c below these prices. Discounts to contract consumers off t.w. price; 300 to 999 gals., 0.5c; 1,000 to 2,499 gals., 0.75c; 2,500 to 4,999 gals., 1c; 5,000 or more gals., 1.5c.

S. O. INDIANA
(Prices include state and federal taxes)

	Oleum Spirits	V.M.&P. Naphtha	Stanisol
Chicago, Ill	16.2	16.5	15.9
Detroit, Mich	19.2	18.2	19.7
Kansas City, Mo	13.9	14.9	14.4
St. Louis, Mo	14.2	15.2	12.9
Milwaukee, Wis	18.8	19.8	19.3
Minneapolis, Minn.	19	20	17.7

Note: All prices, with exception of Missouri points, include state tax. Prices shown are base prices, before discounts.

Naphtha (In Tank Cars)

In Tank Cars (F. o. b. refinery or seaboard terminal except Ohio, delivered price.)

	V.M.&P. Naphtha	Solvent
Baltimore	10.5	9.5
New York Harbor	10	9
Philadelphia district	10.5	9
Boston	10.5	9.5
Providence	10.5	9.5
†Ohio points, delivered	8.5	*8

*This is on rubber solvent.
†In Ohio, prices on D.C. naphtha and special Varnolene are same as V.M.&P.; on Varnolene and Sohio Solvent, prices are 0.125c less than on V.M.&P.

Price Changes

Dates and amounts of changes. See table for full current prices.

S. O. Indiana—Stanolind:
Kansas City cut 1c, Aug. 11.

Kerosine:
Green Bay t. w. cut 0.8c, Aug. 12.

Fuel Oils

Socony-Vacuum—Nos. 2 and 3:
Manchester t. w. up 0.25c, Aug. 10.

Atlantic Refining—No. 2:
Springfield t. w. up 0.25c, Aug. 14.

Nos. 2 and 4:
Worcester t. w. up 0.25c, Aug. 14.

Coming Meetings

Michigan Petroleum Assn., Park Place Hotel, Traverse City, Mich., Sept. 14, 15.
American Institute of Mining and Metallurgical Engineers, Industrial Minerals Division, Tuscaloosa, Ala., Sept. 2, 3, 4.
American Society of Mechanical Engineers, Hotel Pennsylvania, and Engineering Societies Bldg., 29 West 39th St., New York, Sept. 4 to 8.
Oil Workers International Union, Hammond Ind., Sept. 5.
Kentucky Petroleum Marketers Assn., annual fall conference and golf tournament, Lafayette Hotel and Ashland Golf Club, Lexington, Sept. 7.
American Chemical Society, Detroit, Sept. 9 to 13.
North American Gasoline Tax Conference, annual meeting, Nicolet Hotel, Minneapolis, Minn., Sept. 11 to 13.
Montana National Bituminous Conference, Sun Valley, Idaho, Sept. 11 to 14.
National Assn. of Petroleum Retailers, Des Moines, Iowa, Sept. 11 to 14.
American Chemical Society, 98th annual meeting, Boston, Mass., Sept. 11 to 15.
National Petroleum Assn., 37th annual meeting, Hotel Traymore, Atlantic City, N. J., Sept. 13, 14, 15.
Oil Trades Assn. of New York, sports day, Pelham Country Club, Pelham, N. Y., Sept. 19.
West Virginia Oil & Natural Gas Assn., annual convention, Charleston, W. Va., Sept. 27, 28.
New Jersey Oil Trades Assn., fall outing, Sept. 28.
Society of Automotive Engineers, Hotel Schroeder, Milwaukee, Sept. 28, 29.
National Lubricating Grease Institute, Stevens Hotel, Chicago, Oct. 2, 3.
American Institute of Mining and Metallurgical Engineers, Petroleum Division, Galveston, Tex., Oct. 4, 5, 6.
Western Petroleum Refiners Assn., regional technical meeting, Allis Hotel, Wichita, Kan., Oct. 5.
Texas Mid-Continent Oil & Gas Assn., 20th annual meeting and convention, Rice Hotel, Houston, Tex., Oct. 5, 6, 7.
Society of Automotive Engineers, National Aircraft production meeting, Biltmore Hotel, Los Angeles, Calif., Oct. 5, 6, 7.
American Gas Assn., annual convention, New York, Oct. 9, 10.
Society of Automotive Engineers, Annual dinner, Hotel Pennsylvania, New York, Oct. 16.
Independent Petroleum Assn. of America, 10th annual meeting, Ft. Worth, Tex., Oct. 18-20.
National Tax Conference, Palace Hotel, San Francisco, week of Oct. 16.
40th Annual National Automobile Show, Grand Central Palace, New York, week of Oct. 15.
National Safety Congress and Exposition, Convention Hall, Atlantic City, N. J., Oct. 16 to 20. Petroleum Section, Ambassador Hotel.
American Institute of Mining and Metallurgical Engineers, Petroleum Division, Los Angeles, Oct. 19, 20.
Western Petroleum Refiners Assn., regional technical meeting, Allis Hotel, Wichita, Kan., Oct. 5.
West Virginia Petroleum Assn., second annual meeting, Hotel Daniel Boone, Charleston, W. Va., Oct. 25.
Society of Automotive Engineers Transportation & Maintenance Meeting, Coronado Hotel, St. Louis, Mo., Oct. 26, 27.
Colorado Petroleum Industries Committee, annual convention, Shirley-Savoy Hotel, Denver, Oct. 27.
Western Petroleum Refiners Assn., regional technical meeting, Washington-Youree Hotel, Shreveport, La., Oct. 27.
Oil Trades Assn. of New York, annual banquet, Waldorf-Astoria Hotel, New York, Nov. 1.
Society of Automotive Engineers Fuel & Lubricants Meeting, Mayo Hotel, Tulsa, Okla., Nov. 2, 3.
National Motor Truck Show, Navy Pier, Chicago, Nov. 8-16.
American Petroleum Institute, 20th annual meeting, Stevens Hotel, Chicago, Nov. 13-17.
Twenty-Five Year Club of Petroleum Industry, first annual meeting and dinner, Stevens Hotel, Chicago, Nov. 14.
American Institute of Chemical Engineers, 32nd annual meeting, Providence-Biltmore Hotel, Providence, R. I., Nov. 15, 16, 17.
American Society of Mechanical Engineers, Philadelphia, Pa., Dec. 4 to 7.
17th Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 4 to 9.
West Central Texas Oil & Gas Assn., Abilene, Tex., some time in December.

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Society of Automotive Engineers, Annual Meeting and Engineering Display, Book-Cadillac Hotel, Detroit, Jan. 15 to 19.
American Institute of Mining and Metallurgical Engineers, New York, Feb. 12 to 15.
Kentucky Petroleum Marketers Assn., 14th annual meeting and convention, Brown Hotel, Louisville, Ky., Feb. 14, 15.
Ohio Petroleum Marketers Assn., Deshler-Wallick Hotel, Columbus, O., Feb. 27, 28 and 29.
American Assn. of Petroleum Geologists, Stevens Hotel, Chicago, April 10, 11, 12.
American Petroleum Institute, Eastern District, Division of Production, Columbus, O., April 11, 12.
National Petroleum Assn., 37th semi-annual meeting, Hotel Cleveland, Cleveland, O., April 18, 19.

California

(*Continued from page* 38)

quarter of a cent—and compared with a current rack price of 6.75 cents.

Wax

NEW YORK, Aug. 21.—Prices for fully refined and scale grades of wax at New York and New Orleans were generally unchanged during the week ended Aug. 19, according to reports of suppliers. Movement of stocks was said to be seasonal.

Fuel Oil

CHICAGO, Aug. 21. — Only minor changes in light fuel oil quotations were reported last week. Some resellers said they believed there was a possibility that fuel oil prices also would be affected by the crude shutdown, but as yet it has had little noticeable effect.

Several marketers said that they had received occasional inquiries for fuel to cover fall agricultural needs. Little actual buying, however, was reported.

No changes were reported in industrial fuel quotations during the week.

* * *

TULSA, Aug. 21.—Inquiry for light fuels from northern heating oil distributors was unchanged despite the shutdown of Mid-Continent oil wells, suppliers reported. They said distributors apparently had sufficient stocks to supply any early-fall demand and were "waiting out" the market. Light fuel oil quotations reported last week, were fractionally below previous week's quotations.

Several refiners reported withdrawing their quotations for heavy fuels last week.

TANK WAGON MARKETS, HEATING OILS

Prices in Effect Aug. 21, 1939

Following are posted tank wagon prices of various grades of heating oil at the points shown in various territories. Prices are in cents per gallon.

	No. 1	No. 2	No. 4
S. O. NEW JERSEY			
Atlantic City, N. J.	7.0	5.75	5.75
Newark	7.0	5.75	5.75
Annapolis, Md	....	6.5	....
Baltimore	6.75	6.25	5.75
Washington, D. C.	7.00	6.50	6.50
Norfolk, Va.	7.0	6.0	6.0
Petersburg	7.25	6.25	....
Richmond	7.25	6.25	6.25
Charlotte, N. C.	8.75	7.5	....
Hickory	....	8	....
Raleigh	8.75	7.25	....
Charleston, S. C.	8.5	7.0	....
Columbia	9.4	8.0	....
Spartanburg	10.1	8.7	....

SOCONY-VACUUM OIL CO. INC.
(S. O. New York Division)

	Nos. 2 & 3	No. 4
New York City	6.00	6.00
Albany, N. Y.	6.00	5.50
Rochester, N. Y.	7.00	7.00
Boston, Mass.	6.00	6.00
Bangor, Me.	6.25	6.25
Manchester, N. H.	6.50	6.50
Burlington, Vt.	6.50	6.50
Hartford, Conn.	6.00	6.00
New Haven, Conn.	5.50	5.50
Providence, R. I.	5.75	5.75

Note: Prices for No. 1 fuel in Socony-Vacuum territory same as for kerosine which see in tank wagon table for various cities; prices change with kerosine.

ATLANTIC REFINING

	Numbers 1	2	3	4	5	6
Phila., Pa.	7.75	6.0	6.0	6.0	3.75	3.00
Allentown, Pa.	8.5	6.5	6.5	6.5	....	....
Wilmington, Del.	7.75	5.5	5.5	5.5	....	....
Springfield, Mass.	6.0	5.75	....	....	....	....
Worcester, Mass.	7.0	5.75	....	5.75	....	....
Hartford, Conn.	6.5	6.0	....	6.0	....	....

S. O. OHIO

	No. 1	No. 2	No. 3
Columbus Division and Cleveland	7.50	7.50	7.00
City of Lima	8.00	8.00	7.00
Rest of Ohio	8.00	8.00	7.50

Note: S. O. Ohio prices are for full compartment hose dumps, bucket dumps are 0.5c per gallon higher.

S. O. INDIANA
Stanolex Fuel and Furnace Oils

	No. 1 Fuel	Stanolex Furnace
Chicago	(a)6.75	6.75
Indianapolis	....	(b)7.8
Detroit	....	7.1
Milwaukee	8.4	7.7
Minneapolis	7.8	7.8
St. Louis	7.7	(c)6.7
Kansas City	6.8	6.8

(a) For 400 gals. and over; 150 to 399 gals., 7.25c; 1 to 149 gals., 8.25c.
(b) Excluding 4c state tax.
(c) For 400 gals. & over; 100 to 399 gals., 7c; 1 to 99 gals., 8c.
Note: Small-lot deliveries of light fuel oils range up to 2c higher than above quotations.

Group 3 Freight Rates

To Division Headquarters Points of Standard Oil Co. of Indiana

	Gasoline-Kerosine Cents per Cwt.	Gasoline-Kerosine Cents per gal. 6.6 lbs.	Distillate-Gas Oil-Fuel Oil Cents per Cwt.	Distillate-Gas Oil-Fuel Oil Cents per gal. 7.4 lbs.
Chicago, Ill.	40	2.640	32	2.368
Decatur, Ill.	39	2.574	31	2.294
Joliet, Ill.	40	2.640	32	2.368
Peoria, Ill.	39	2.574	31	2.294
Quincy, Ill.	36	2.376	29	2.146
Indianapolis, Ind.	48	3.168	39	2.886
Evansville, Ind.	46	3.036	37	2.738
South Bend, Ind.	53	3.498	42	3.108
Detroit, Mich.	64	4.224	51	3.774
Gd. Rapids, Mich.	62	4.092	50	3.700
Saginaw, Mich.	66	4.356	53	3.922
Green Bay, Wis.	51	3.366	41	3.034
Milwaukee, Wis.	43	2.838	34.5	2.553
LaCrosse, Wis.	46	3.036	37	2.738
Min'ap'is-St. Paul	46	3.036	37	2.738
Duluth, Minn.	52	3.432	41.5	3.071
Mankato, Minn.	46	3.036	37	2.738
Des Moines, Ia.	36	2.376	29	2.146
Davenport, Ia.	39	2.574	31	2.294
Mason City, Ia.	42	2.772	33.5	2.479
St. Louis, Mo.	33	2.178	26.5	1.961
Kansas City, Mo.	28	1.848	22.5	1.665
St. Joseph, Mo.	28	1.848	22.5	1.665
Fargo, N. D.	63	4.158	50.5	3.737
Minot, N. D.	83	5.478	66.5	4.921
Huron, S. D.	53	3.498	42.5	3.145
From Ponca City	13	*0.858	13	†0.858
Wichita				
From Tulsa	21	*1.386	21	†1.386
From Cushing	19	*1.254	19	†1.254

*This rate also includes distillate rate at 6.6 lbs. per gal.

†This rate is exclusive of distillate which is based on 6.6 lbs. per gal. from Ponca City, Tulsa and Cushing, Okla., to Wichita. Includes only gas oil and fuel oil.

NOTE: There is no Group 3 rate to Wichita, Kans.

SEABOARD MARKETS, EXPORT AND COASTWISE

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). In cargo markets, spot shipment is 90 days. Prices in cents per gallon, except heavy fuel oil in dollars per barrel, in tank car lots, f.o.b. refineries or seaboard terminals in districts designated, unless otherwise noted. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.

Eastern Domestic

(Inter-refinery and export prices not included.)

MOTOR GASOLINE

Prices Effective	Aug. 21	
District:	60-64 Oct.	65 Oct. & Above
N. Y. harbor	5.75 – 6.15	6.00 – 6.25
(a) N. Y. harbor	5.75 – 6.15	5.75 – 6.00
Philadelphia	5.75 – 6.50	6.00 – 7.00
Baltimore	(n)5.75	6.00 – 7.25
Norfolk	6.125– 6.375	6.25 – 7.25
Wilmington, N. C.	6.00 – 6.75	6.25 – 7.05
Charleston, S. C.	6.00 – 6.375	6.25 – 6.75
Savannah	5.75 – 6.375	6.25 – 6.75
Jacksonville	5.75 – 6.375	6.25 – 6.75
Portland	.....	6.25 – 6.50
Boston	5.50 – 6.25	5.75 – 6.50
Providence	6.25	6.00 – 6.50

WATER WHITE KEROSINE

District:			
N. Y. harbor	4.25 –4.375	Charleston.	4.75–5.25
(a)N. Y. harbor	4.125– 4.25	Savannah	5.00-5.125
Philadelphia	4.50 – 4.75	Jacksonville	5.00-5.125
Baltimore	4.75	Portland	4.375
Norfolk	4.75 – 4.875	Boston	4.375
Wilmington, N.C.	4.75 – 4.875	Providence.	4.25–4.375

(b) FUEL OILS

	N. Y. harb.	N. Y. harb. barges
No. 1	4.25	4.125
Nos. 2-3	4.00	3.875
No. 4	3.875– 4.00	3.75 – 3.875
No. 5	(m) $1.25	.....
No. 6	$1.05	.....

	Phila. dist.	Balt. dist.
No. 1	4.50 – 4.75	4.75
Nos. 2-3	4.25	4.25
No. 4	4.00 – 4.25	4.00 – 4.25
No. 5	$1.25	$1.25
No. 6	$1.05	$1.05

	Bost. dist.	Prov. dist.
No. 1	4.375	4.25 – 4.375
Nos. 2-3	4.125	4.00
No. 4	4.125	4.00
No. 5	$1.35	(n) $1.30
No. 6	$1.05	$1.05

(c) Bunker

District:	C Fuel	(c) Diesel Oil
N. Y. harbor	$1.05	$1.65 –$1.70
Philadelphia	$1.05	$1.65
Baltimore	$1.05	$1.65
Norfolk	$1.05	$1.65
Charleston	$1.00	$1.65 –$1.75
Savannah	$1.00	$1.785
Jacksonville	$1.00	$1.785
Tampa	$0.95	$1.785
Portland	$1.05	$1.75
Boston	$1.05	$1.65
Providence	$1.05	$1.65

	Diesel Oil Shore Plants	Gas Oil 28-34 Gravity
New York harbor	3.875– 4.00	4.00 – 4.25
Philadelphia dist.	4.25	4.25
Baltimore dist.	4.25	4.25
Norfolk dist.	4.25	4.25
Charleston dist.	4.25	4.25
Jacksonville dist.	4.25	.....
Tampa dist.	4.25	.....
Portland dist.	4.00	4.50
Boston dist.	3.929– 4.125	4.125– 4.25
Providence dist.	3.929– 4.00	4.25

Pacific Export

(e) (Quotations are at seaboard, Los Angeles, in cargo lots, cents per gal., except where otherwise noted.)

Prices Effective	Aug. 21	Aug. 14
U. S. Motor, under 65 octane	4.25 – 4.375	4.25 – 4.375
400 e.p. blend, under 65 octane	.....	4.375– 4.50
400 e.p. blend, 65 octane minimum	4.50 – 4.625	.....
400 e.p. blend, 65 octane & above	.....	4.50 – 4.75
390 e.p. blend, 66 oct.	4.625– 4.75	.....
390 e.p. blend, 68 oct.	4.75 – 4.875	.....
375 e.p. blend, 70 oct.	4.875– 5.25	.....
(d) 38-40 gravity, w.w. kerosine	4.00 – 4.25	4.00 – 4.25
41-43 gravity, w.w. kerosine	4.25 – 4.50	4.25 – 4.50
44 gravity, w.w. kerosine	4.50 – 4.625	4.50 – 4.625

Prices Effective	Aug. 21	Aug. 14
In Cargo lots, per bbl.		
Diesel fuel, 24 & above	$0.95 –$1.05	$0.95 –$1.05
Diesel fuel, under 24	$0.90 –$0.95	$0.90 –$0.95
(f) 30-34 gravity, diesel (gas oil)	$1.05 –$1.20	$1.05 –$1.20
(g) Grade C fuel oil	$0.58 –$0.65	$0.58 –$0.65
In Ships' Bunkers, or deep tank lots, per bbl.:		
(f) Diesel fuel oil	$1.30 –$1.45	$1.30 –$1.45
(g) Grade C fuel oil	$0.70 –$0.90	$0.70 –$0.90
Cased Goods: (Per case		
U. S. Motor	$1.35 –$1.45	$1.35 –$1.45
400 e.p. blend, under 65 octane	$1.40 –$1.50	$1.40 –$1.50
375-400 e.p. blend, 65 oct. & above	$1.50 –$1.60	$1.50 –$1.60
(d) 40-43 gravity, w.w. kerosine	$1.30 –$1.40	$1.30 –$1.40
Kerosine, p.w.	$1.25 –$1.35	$1.25 –$1.35

New York Export

(Cents per gal. in bbls. FAS. New York)

CYLINDER OILS (Pennsylvania Products)

Bright stock:		
Light, 25 p.t.	23.50 –25.00	23.50 –24.00
Neutral oil:		
200 3 color, 25 p.t.	25.00 –25.50	24.50 –25.00
150 3 color, 25 p.t.	23.00 –24.00	22.50 –23.50
600 s.r., unfiltered	15.50 –16.50	(q)15.50 –16.50
650 s.r., unfiltered	17.50 –18.50	17.50 –18.50
600 fl., s.r.	18.00 –19.50	18.00 –19.50
630 fl., s.r.	20.50 –21.50	20.50 –21.50

Wax, Domestic *and* Export

(A.S.T.M. Tests. Melting points, however, are A.M.P., 3 higher than E.M.P. Export prices, FAS., carloads. Domestic prices, FOB. refineries, in bags, carloads, with 0.2c discount allowed for shipment in bulk, except where noted below. Scale solid; fully refined, slabs in bags)

Prices Effective	Aug. 21	
	New York	
	Domestic	Export
124-6 Y.C. scale	2.80	2.80
122-4 W.C. scale	2.85	2.85
124-6 W.C. scale	2.85	2.85
123-5 Fully rfd.	(h) 3.75 –4.00	3.625
125-7 Fully rfd.	(h) 3.90 –4.15	3.75
128-30 Fully rfd.	(h) 4.00 –4.25	4.00
130-2 Fully rfd.	(h) 4.35 –4.60	4.25
133-5 Fully rfd.	(h) 4.65 –4.90	4.65
135-7 Fully rfd.	(h)5.15	5.00
	New Orleans	
	Domestic	Export
124-6 Y.C. scale	2.80	2.80
122-4 W.C. scale	2.85	2.85
124-6 W.C. scale	2.85	2.85
123-5 Fully rfd.	(h) 3.75 –4.00	3.625
125-7 Fully rfd.	(h) 3.90 –4.15	3.75
128-30 Fully rfd.	(h) 4.00 –4.25	4.00
130-2 Fully rfd.	(h) 4.35 –4.60	4.25
133-5 Fully rfd.	(h) 4.65 –4.90	4.65

Gulf Coast

(FOB. ship at Gulf for domestic and export shipment; minimum 20,000 bbls.; representing traders' opinions)

MOTOR GASOLINE

	Aug. 21		
	60-62 Gravity, 400 e.p.	61-63 Gravity, 390 e.p.	64-66 Gravity, 375 e.p.
60 octane	4.75 – 5.125	4.75 – 5.125	4.75 – 5.125
65 octane	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
67 octane	(n)5.375	(n)5.375	(n)5.375
68 octane	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
70 octane	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625
72-74 oct.	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75

Prices Effective	Aug. 21	Aug. 14
KEROSINE		
44 gravity, w.w.	4.00	3.75 – 3.875
41-43 gravity, w.w.	3.75 – 4.00	3.50 – 3.75
41-43 gravity, p.w.	3.75 – 4.00	3.50 – 3.625

Prices Effective	Aug. 21	Aug. 14
GAS AND BUNKER OILS		
Gas Oil (i):		
Below 43 diesel index	3.375	3.125
43-47 diesel index	3.50 – 3.625	3.25 – 3.375
48-52 diesel index	3.625– 3.75	3.375– 3.50
53-57 diesel index	3.625– 3.875	3.375– 3.625
58 & above	3.75 – 4.00	3.50 – 3.75
LIGHT FUEL OILS		
No. 1	(o)	3.50
No. 2	3.375– 3.75	3.25 – 3.50
DIESEL and BUNKER OILS		
(c) Diesel Oil	$1.45	$1.45
(c) Grade C bunker oil	$0.80	$0.80
Grade C bunker oil, in cargoes	$0.80	$0.78 –$0.80

MID-CONTINENT LUBRICATING OILS

(Cents per gal. at Gulf; in bbls., FAS.; in bulk, FOB. terminals)

	Aug. 21	
	(j) Barrels	Bulk
190-200 vis. D. 210 brt. stock	22.00	17.80
150-160 vis. D 210 brt. stock:		
0-10 p.p.	18.50 –19.00	14.25 –14.30
10-25 p.p.	18.00 –18.50	13.75 –13.80
150-160 vis. E. 210 brt. stock	18.00	13.80
120 vis. D 210 brt. stock	17.25 –17.50	13.00 –14.50

	Aug. 21 Bulk	Aug. 14 Bulk
180 vis. No. 3 color neutral:		
0-10 p.p.	10.05 –11.50	10.05 –11.50
15-30 p.p.	9.55 –11.00	9.55 –11.00
200 vis. No. 3 color neutral:		
0-10 p.p.	10.80 –12.00	10.80 –12.00
15-30 p.p.	10.30 –11.50	10.30 –11.50
600 s.r. olive green	9.00 –11.25	9.00 –11.25
600 s.r. dark green	7.00 – 9.25	7.00 – 9.25

SOUTH TEXAS LUBRICATING OILS

(Vis. at 100° cold test 0, bulk export shipment, FOB terminals.)

Unfiltered Pale Oils:

Vis.	Color		
100	No. 3	4.50	4.50
200	No. 3	6.00	6.00
300	No. 3	6.50	6.50
500	No. 3½	7.50	7.50
750	No. 4	8.00	8.00
1200	No. 4	8.375	8.375
2000	No. 4	8.50	8.50

Red Oils:

Vis.	Color		
100	No. 5-6	4.50	4.50
200	No. 5-6	6.00	6.00
300	No. 5-6	6.50	6.50
500	No. 5-6	7.50	7.50
750	No. 5-6	8.00	8.00
1200	No. 5-6	8.375	8.375
2000	No. 5-6	8.50	8.50

Note: Red oil prices cover oils with green cast; prices for blue cast red oils are slightly lower in some cases.

Tanker Rates

(Approximate freight rates to Continental ports shillings per ton of 2240 lbs., British sterling; U. S. ports cents per bbl.)

Rates Effective Aug. 21

	Crude & /or Fuel		Refined Oil & /or Spirits	
	Last Paid	Owners Ask	Last Paid	Owners Ask
Gulf-U.K./Cont.(k)	9/3	9/6 to 10/-	10/3	10/6 to 11/-
Aruba-U.K./Cont. (k)	8/6	8/6 to 9/-	9/3	9/6 to 10/-
Gulf-N. Atlantic(l) (not E. of N.Y.): Hvy. Crude & fuel, (10 to 19.9 gravity)	17c	17c	....	....
Light Crude, (30 Grav. or Lighter)	16c	15c	....	....
Gasoline	....	....	15c	14.5-15c
Kerosine	....	....	15c	15.5-16c
Light Fuel	....	....	16c	16.5-17c

(a) In barge lots. (b) Fuel oils meet specifications of U. S. Commercial standards CS12-35. (c) Ships' bunkers. Lighterage, additional at some points, not included. (d) 150 fire point. (e) For San Francisco cargo prices, add 5c per bbl. to cargo prices shown above. (f) Pacific Specification 200. (g) Pacific Specification 400. (h) Shipment in bags or in bulk (i) Less than ½ of 1% sulfur. (j) Second-hand barrels. (k) Continental ports in range between Bordeaux and Hamburg, both inclusive. (l) Venezuela loading, same rate: Tampico, 2c to 3c per bbl. additional. (m) Low pour test, low viscosity, No. 5 generally quoted at $1.35. (n) One refiner quoting. (o) No prices reported. (p) Two refiners quoting. (q) Correction: Thru clerical error, price of this product in Aug. 16 issue, page 44, was shown at 15.50-16.00c as of Aug. 14; correct price that date was 15.50-16.50c.

CRUDE OIL MARKETS

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN FIELDS

Posted by Joseph Seep Purchasing Agency
(Effective March 6, 1939, except Corning Jan. 24, 1939)

Penna. Grade Oil in Southwest Penna. Pipe Lines $1.65
Penna. Grade Oil in Eureka Pipe Lines (West Virginia) $1.59
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.) $1.55
Corning Oil in Buckeye Pipe Lines (Ohio) $1.02

Posted by Other Companies

Tide Water Associated Oil Co.
Bradford-Allegany district (Penna. and N. Y.) (Effective March 6, 1939) $2.00
*The Pennzoil Co.: (Effective March 6, 1939)
Penna. Grade Oil in National Transit Lines *1.93
*The Pennzoil Co. posts $1.93 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields, prices in other lower districts range down to $1.88 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co.
Midland, Midland County (April 17, 1939) ... $0.975

Posted by Simrall Corp.
(Effective April 20, 1939)
Crystal, Greendale, Porter and Wise $0.975
Beaverton, Buckeye, Bentley, Edenville $0.95
Freeman $0.89
(Effective April 18, 1939)
West Branch, Arenac, and equal grades $0.74

Posted by Bay Pipe Line Corp.
(Effective April 20, 1939)
Bentley and Buckeye $0.95
Saginaw and Wise $0.975

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.
(Effective June 8, 1939)
Illinois and Western Indiana $0.95
Illinois Basin $1.05

Posted by Sohio Corp.
Illinois Basin:
(Effective Aug. 16, 1939)
Salem-Lake Centralia $0.85
(Effective June 8, 1939)
Balance of Illinois Basin $1.05
(Effective July 15, 1939)
Griffin (Ind.) pool, sand wells $0.85
Griffin (Ind.) pool, McCloskey lime $0.80

Posted by Carter Oil Co.
(Effective June 10, 1939)
Louden, Fayette County, Ill. $1.05

Posted by Ashland Oil & Transportation Co.
(Effective June 9, 1939)
Somerset Oil in Ashland Lines, Kentucky:
Big Sandy River $1.02
Kentucky River $1.10

Posted by Stoll Oil Refining Co.
(Effective June 10, 1939)
Stoll Pipe Line Oil (Ky.) $0.90

Posted by Fordsville Gathering Line, Inc.
Western Kentucky
(Effective June 9, 1939)
Birk City Area $0.90
Owensboro Area $1.00
Corydon Area (Henderson) $0.90

CANADIAN FIELDS

Posted by Imperial Oil Limited
Western Ontario
(Effective Oct. 25, 1938)
Petrolia $1.90
Oil Springs $1.97

Alberta—Turner Valley
(Prices f.o.b. field tankage)
(Effective Jan. 5, 1938)

Crude Oil			
40-40.9°	$1.14	53-53.9	$1.40
41-41.9	1.16	54-54.9	1.42
42-42.9	1.18	55-55.9	1.44
43-43.9	1.20	56-56.9	1.46
44-44.9	1.22	57-57.9	1.48
45-45.9	1.24	58-58.9	1.50
46-46.9	1.26	59-59.9	1.52
47-47.9	1.28	60-60.9	1.54
48-48.9	1.30	61-61.9	1.56
49-49.9	1.32	62-62.9	1.58
50-50.9	1.34	63-63.9	1.60
51-51.9	1.36	64-64.9	1.62
52-52.9	1.38		

Crude Naphtha, 65 grav. & above $2.14

Absorption Gasoline	
90% Rec., 20 lb. Reid v.p.	$1.94
90% Rec., 17 lb. Reid v.p.	$2.08

MID-CONTINENT
Oklahoma-Kansas
*(For effective dates, see footnote)

	S. O. Indiana	Carter Oil-Magnolia Shell	Continental Texas Co.	Sinclair Prairie
Below 21°	$0.70	$0.60	....	....
21-21.9	.72	.63	....	....
22-22.9	.74	.66	....	....
23-23.9	.76	.69	....	....
24-24.9	.78	.72	....	....
25-25.9	.80	.75	....	†
26-26.9	.82	.78	....	....
27-27.9	.84	.81	....	....
28-28.9	.86	.84	$0.86	....
29-29.9	.88	.87	.88	....
30-30.9	.90	.90	.90	....
31-31.9	.92	.92	.92	....
32-32.9	.94	.94	.94	....
33-33.9	.96	.96	.96	....
34-34.9	.98	.98	.98	....
35-35.9	1.00	1.00	1.00	....
36-36.9	1.02	1.02	1.02	....
37-37.9	1.04	1.04	1.04	....
38-38.9	1.06	1.06	1.06	....
39-39.9	1.08	1.08	1.08	....
40 & above	1.10	1.10	1.10	....

*Effective in 1938 by Carter Oil, Oct. 13, posting in Okla. only; Continental Oil, Oct. 11, with lowest grade below 29; Magnolia, Oct. 12, posting in Okla. only; Shell, Oct. 22; S. O. Indiana, Oct. 17; The Texas Co., Oct. 12.

†Effective Aug. 18, 1939, Sinclair-Prairie Oil Marketing Co. discontinued price postings in Okla.-Kans.

North-North Central and Central Texas
*(For effective dates, see footnote)

	Stanolind	Sinclair Prairie	Texas Co. Continental Magnolia
Below 21°	$0.60	....	....
21-21.9	.62	....	....
22-22.9	.64	....	....
23-23.9	.66	....	....
24-24.9	.68	†	$0.79
25-25.9	.70	....	for
26-26.9	.72	....	oil
27-27.9	.74	....	below
28-28.9	.76	....	29°.
29-29.9	.78	....	.81
30-30.9	.80	....	.83
31-31.9	.82	....	.85
32-32.9	.84	....	.87
33-33.9	.86	....	.89
34-34.9	.88	....	.91
35-35.9	.90	....	.93
36-36.9	.92	....	.95
37-37.9	.94	....	.97
38-38.9	.96	....	.99
39-39.9	.98	....	1.01
40 & above	1.00	....	1.03

*Effective Oct. 11, 1938 by Continental, in North Tex.; Oct. 12, 1938, by Texas Co. in North & North Central Texas. Texas Co.'s lowest grade is 28-28.9, at $0.79; by Magnolia, Dec. 3, 1938, in N. and N. Central Texas.

†Sinclair Prairie discontinued price postings in N. Texas and Mexia, effective Aug. 18, 1939.

Jefferson County, Texas
Beaumont

	Magnolia (*Oct. 12, '38*)	West Beaumont Stanolind (*Aug. 12, '39*)
Below 20°	$0.79	$0.71
20-20.9	.82	.73
21-21.9	.85	.75
22-22.9	.88	.77
23-23.9	.91	.79
24-24.9	.94	.81
25-25.9	.97	.83
26-26.9	1.00	.85
27-27.9	1.02	.87
28-28.9	1.04	.89
29-29.9	1.06	.91
30-30.9	1.08	.93
31-31.9	1.10	.95
32-32.9	1.12	.97
33-33.9	1.14	.99
34-34.9	1.16	1.01
35-35.9	1.18	1.03
36-36.9	1.20	1.05
37-37.9	1.22	1.07
38-38.9	1.24	1.09
39-39.9	1.26	1.11
40 & above	1.28	1.13

TEXAS FIELDS

Posted by Humble Oil & Refining Co.
**East Central and *West Central Texas*
(Effective Aug. 11, 1939)

†23-23.9	†$0.46	32-32.9	$0.64
24-24.9	.48	33-33.9	.66
25-25.9	.50	34-34.9	.68
26-26.9	.52	35-35.9	.70
27-27.9	.54	36-36.9	.72
28-28.9	.56	37-37.9	.74
29-29.9	.58	38-38.9	.76
30-30.9	.60	39-39.9	.78
31-31.9	.62	40 & above	.80

*West Central Texas includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young Counties. *East Central includes Anderson, Cherokee, Limestone and Navarro counties. †Applies in East Cent. Texas only.

Effective Aug. 11, 1939, Shell posts in Fisher County, same schedule as Humble above, except that its lowest grade is below 25, at $0.48.

Note: Effective Oct. 1, 1937, Humble prices are based on 100% tank tables at 60F.

Posted by Pan American Pipe Line Co.
(Effective Feb. 15, 1939)
Cayuga, Anderson county $0.68

PANHANDLE TEXAS

Posted by Humble Oil & Refining Co.
(Effective Aug. 11, 1939)

	Sweet Crude	Sour Crude
28-28.9	$0.52	$0.47
29-29.9	.54	.49
30-30.9	.56	.51
31-31.9	.58	.53
32-32.9	.60	.55
33-33.9	.62	.57
34-34.9	.64	.59
35-35.9	.66	.61
36-36.9	.68	.63
37-37.9	.70	.65
38-38.9	.72	.67
39-39.9	.74	.69
40 & above	.76	.71

Effective Aug. 18, 1939, Sinclair Prairie discontinued price postings in Gray, Carson and Hutchinson counties.

***EAST TEXAS**

By Humble, Stanolind, Tide Water-Associated $0.90
By Gulf, Magnolia, Texas Co. $1.10
Sinclair Prairie ..... †

*Effective dates: Aug. 11, 1939, by Humble and Tide Water-Associated; Aug. 12, by Stanolind; Oct. 12, 1938, by Magnolia, Texas Co.; Oct. 13, by Gulf.

†Effective Aug. 18, 1939, price postings discontinued.

***East Texas, and Livingston and Schwab-Wilcox Areas of Polk County, Tex.**

Posted by Shell Oil Co., Inc.
(Effective Aug. 11, 1939)

Below 34	$0.78	37-37.9	$0.86
34-34.9	.80	38-38.9	.88
35-35.9	.82	39 & above	.90
36-36.9	.84		

*Corrected schedules over those published in Aug. 14 issue.

NORTHEAST TEXAS

(Posted by Humble, Aug. 11, 1939)
Talco $0.50

(Posted by Magnolia, Oct. 12, 1938)
Cass County and Panola County, Tex.:
Magnolia posts below 25° at $0.73, plus 2c differential for each degree, to top grade of 40 & above, at $1.05.

(Posted by The Texas Co., Oct. 12, 1938)
Cass County $1.05

WEST TEXAS and NEW MEXICO

(a) (For effective dates, see footnote)

	(c) Stanolind	(c) Humble Magnolia (b)	Shell	Texas Co.	Sinclair Prairie (d)
Below 20°			$0.33		
20-20.9			.35		
21-21.9			.37		
22-22.9			.39		
23-23.9	$0.41		.41		
24-24.9	.43		.43		
25-25.9	.45		.45	.65	
26-26.9	.47	$0.67	.47	.67	
27-27.9	.49	.69	.49	.69	
28-28.9	.51	.71	.51	.71	
29-29.9	.53	.73	.53	.73	
30-30.9	.55	.75	.55	.75	
31-31.9	.57	.77	.57	.77	
32-32.9	.59	.79	.59	.79	
33-33.9	.61	.81	.61	.81	
34-34.9	.63	.83	.63	.83	
35-35.9	.65	.85	.65	.85	
36-36.9	.67	.87	.67	.87	
37-37.9	.69	.89	for	for	
38-38.9	.71	.91	oil	oil	
39-39.9	.73	.93	36° &	36° &	
40 & above	.75	.95	above.	above.	

Pecos County, West Texas
(Posted by Humble and Shell, Aug. 11, 1939)
Pecos $0.58
Yates Shallow Pool (Shell only) ..... .45

(a) Effective Aug. 11, 1939 by Humble; Shell Oil, Aug. 11, 1939; by Magnolia Petroleum and The Texas Co., Oct. 12, 1938; Stanolind, Aug. 11, 1939.

(b) Magnolia posts $0.63 for below 25; $0.65 for 25-25.9.

(c) Humble posts, in full, the schedule shown in above table. Stanolind posts below 26 at $0.45; rest of schedule same as table above.

(d) Effective Aug. 18, 1939, Sinclair Prairie discontinued price postings in West Texas, Lea and Eddy counties, N. Mex.

Note: Humble's postings are in these counties: Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler and Yoakum, West Texas; and Lea county, N. Mex.; Magnolia's are in Crane, Glasscock, Howard, Mitchell, Upton and Winkler; Shell, in Crane, Ector, Glasscock, Howard, Upton, Winkler, Lea; Stanolind in Hendrick and Henderson field, Winkler county; Texas Co. in Ward, Winkler and Lea.

Posted by Continental Oil Co.
(Effective Oct. 11, 1938)
Artesia, Jackson and Maljamar pools, New Mexico: gravity schedule beginning with below 29, at $0.61; 29-29.9, at $0.63; plus 2c differential for each gravity, up to 40 & above, at $0.85.

COLORADO

Posted by Continental Oil Co.
(Effective Oct. 11, 1938)
Ft. Collins and Wellington

Below 29	$0.81	35-35.9	$0.95
29-29.9	.83	36-36.9	.97
30-30.9	.85	37-37.9	.99
31-31.9	.87	38-38.9	1.01
32-32.9	.89	39-39.9	1.03
33-33.9	.91	40 & above	1.05
34-34.9	.93		

Canon City and Florence, Col. $0.90

SOUTH AND SOUTHWEST TEXAS

All Shown Below Posted by Humble Oil & Refining Co.
(Effective Aug. 11, 1939)

Carroll, Clark, Darst Creek, Hilbig, Salt Flat and Zoboroski crudes $0.76
Van crude $0.73
Conroe $1.07
Alice $1.00
Flour Bluff $0.95

Oct. 12, '38, Magnolia posted $0.96 in Darst Creek; $0.87 in Luling; $0.99 in Lytton Springs; $1.14 for Cleveland, and $1.02 in Hardin, both in Liberty county, Tex.

Oct. 12, '38, The Texas Co. posted $0.96 in Darst Creek.

**Anahuac and Dickinson*
(Effective Aug. 11, 1939)

Below 20°	$0.61	30-30.9	$0.83
20-20.9	.63	31-31.9	.85
21-21.9	.65	32-32.9	.87
22-22.9	.67	33-33.9	.89
23-23.9	.69	34-34.9	.91
24-24.9	.71	35-35.9	.93
25-25.9	.73	36-36.9	.95
26-26.9	.75	37-37.9	.97
27-27.9	.77	38-38.9	.99
28-28.9	.79	39-39.9	1.01
29-29.9	.81	40 & above	1.03

*Includes Cedar Point, Fairbanks, Gillock, Hull, Pierce Junction, Raccoon Bend (shallow sand), Satsuma, Tomball and Turtle Bay.

(Continued on next page)

CRUDE OIL MARKETS

(Continued from preceding page)

***Sweden Crude**
(Effective Aug. 11, 1939)

30-30.9	$0.88	36-36.9	$1.00
31-31.9	.90	37-37.9	1.02
32-32.9	.92	38-38.9	1.04
33-33.9	.94	39-39.9	1.06
34-34.9	.96	40 & above	1.08
35-35.9	.98		

*Includes high gravity crude purchased in Benavides, Tesoro, Fitzsimmons, Kelsey, and Heyser, Tex. fields, by Humble.

Tomball, Texas

Stanolind, effective Aug. 12, 1939, posted same prices as Humble posts in Anahuac-Dickinson, except that Stanolind's gravity schedule begins with below 29, at $0.79. Rest of schedule same as Humbles.

***Mirando**
Posted by Humble
(Effective Aug. 11, 1939)

Below 20°	$0.66	25-25.9	$0.78
20-20.9	.68	26-26.9	.80
21-21.9	.70	27-27.9	.82
22-22.9	.72	28-28.9	.84
23-23.9	.74	29-29.9	.86
24-24.9	.76		

*Includes low gravity crude purchased in Duval, Jim Hogg, Jim Wells, Webb and Zapata counties, Tex. and Placedo field.

LOUISIANA-ARKANSAS
Posted by Standard Oil Co. of Louisiana
(Effective Aug. 14, 1939)

	*N. La. Ark. Sweet	*South La. Sour	*Ark. Sour	Baton Rouge-University
Below 21°	$0.53	$0.60	$0.43	$0.65
21-21.9	for	.62	for	.67
22-22.9	oil	.64	oil	.69
23-23.9	Below	.66	Below	.71
24-24.9	25°	.68	25°	.73
25-25.9	.55	.70	.45	.75
26-26.9	.57	.72	.47	.77
27-27.9	.59	.74	.49	.79
28-28.9	.61	.76	.51	.81
29-29.9	.63	.78	.53	.83
30-30.9	.65	.80	.55	.85
31-31.9	.67	.82	.57	.87
32-32.9	.69	.84	.59	.89
33-33.9	.71	.86	.61	.91
34-34.9	.73	.88	.63	.93
35-35.9	.75	.90	.65	.95
36-36.9	.77	.92	.67	.97
37-37.9	.79	.94	.69	.99
38-38.9	.81	.96	.71	1.01
39-39.9	.83	.98	.73	1.03
40 & above	.85	1.00	.75	1.05

*North Louisiana-Arkansas sweet includes Homer, Caddo, De Soto, Sabine, Haynesville, Bunkie, Rodessa, Cotton Valley, Eola and Sligo, La. and Miller County, Ark. South Louisiana Sour includes Choctaw, Darrow, North Crowley, Roanoke and St. Martinville. Arkansas Sour includes Buchner, Magnolia, and Village pools.

(Effective Aug. 14, 1939)

Smackover, Ark	$0.60
Cotton Valley Distillate	$1.00

Posted by Arkansas Fuel Oil Corp.
(Effective Jan. 28, 1937)

Urania, La.	$1.02

Posted by Continental Oil Co.
(Effective Oct. 11, 1938)

Tepetate and Ville Platte, La.	$1.03

(Effective Jan. 1, 1939)

Abbeville, La.

Below 36	$0.92	38-38.9	$0.98
36-36.9	.94	39-39.9	1.00
37-37.9	.96	40 & above	1.02

Posted by Caddo Crude Oil Purchasing Corp.
(Effective July 17, 1939)

Allison area, Shreveport field	$0.95

Lisbon, N. La.
(Effective Aug. 1, 1939)

27-27.9	$0.56	32-32.9	$0.66
28-28.9	.58	33-33.9	.68
29-29.9	.60	34-34.9	.70
30-30.9	.62	35 & above	.72
31-31.9	.64		

Note: S. O. Louisiana prices in all La.-Ark. fields, effective Oct. 5, 1938, are on 100% tank table basis.

GULF COASTAL FIELDS
(*Posted by Companies shown*)

	*Humble (*Aug. 11, '39*)	Sinclair	*Stanolind (*Aug. 12, '39*)	Shell (*Aug. 14, '39*)
Below 20	$0.71	(a)		(c)$0.59
20-20.9	.73		(b)$0.73	.61
21-21.9	.75		.75	.63
22-22.9	.77		.77	.66
23-23.9	.79		.79	.69
24-24.9	.81		.81	.72
25-25.9	.83		.83	.75
26-26.9	.85		.85	.78
27-27.9	.87		.87	.80
28-28.9	.89		.89	.82
29-29.9	.91		.91	.84
30-30.9	.93		.93	.86
31-31.9	.95		.95	.88
32-32.9	.97		.97	.90
33-33.9	.99		.99	.92
34-34.9	1.01		1.01	.94
35-35.9	1.03		1.03	for
36-36.9	1.05		1.05	oil
37-37.9	1.07		1.07	34° &
38-38.9	1.09		1.09	above.
39-39.9	1.11		1.11	
40 & above	1.13		1.13	

*Humble's prices apply in these Texas fields: Amelia, Clear Lake, Goose Creek, Greta, Mykawa, O'Connor-McFadden, Plymouth, Raccoon Bend (deep sand), Refugio, Saxet, Sugarland, Thompsons, Tom O'Connor, Webster and West Columbia. Stanolind's prices apply in Clinton, Hastings, High Island, South Houston, Spindletop.

(a) Effective Aug. 18, 1939, price postings discontinued.

(b) $0.73 for Below 21.

(c) Shell posts these prices in Iowa district, Black Bayou and White Castle, La; prices in Iowa district have 2 lower grades: Below 18, at $0.55; 18-18.9, $0.57; and 19-19.9, is $0.59.

Posted by Shell Oil Co., Inc.
(Effective Aug. 14, 1939)

Gibson field, Terreborne Parish, La.	$0.84

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co.
(Effective Oct. 11, 1938)

Salt Creek, (except Tensleep crude), Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma-Kansas, ranging from $0.86 to $1.10, which see under Mid-Continent crude on previous page.

Tensleep, Salt Creek field	$0.646
Iles, heavy	0.92
Elk Basin, light	0.90
Grass Creek, light	0.90
Frannie light	0.55
Grass Creek, heavy	0.40
Hamilton Dome, Wyo.	0.35
Frannie heavy	0.42

Posted by Ohio Oil Co.
(Effective Oct. 11, 1938)

Elk Basin, Wyo.	$0.90
Grass Creek, light	0.90
Rock Creek	1.00
Lance Creek	0.77
Dry Creek, Mont.	0.92

(Effective May 1, 1938)

Grass Creek, heavy	$0.50

(Effective Nov. 16, 1937)

Sunburst, Mont.	$0.90

Posted by Continental Oil Co.
(Effective Oct. 11, 1938)

Cat Creek, Mont.	$1.10
Big Muddy, Wyo.	0.98
Lance Creek, Wyo.	0.77

CALIFORNIA, *Posted by Standard Oil of California*

All gravities above those quoted take highest price offered in the field. Prices effective Feb. 26, 1936, except Huntington Beach, Playa del Rey, Santa Fe Springs, Kern Front, Signal Hill (Long Beach) effective March 7, 1936; Elk Hills effective June 22, 1936; Lakeview Area, Aug. 19, 1936; El Segundo and Wilmington, Oct. 15, 1937; Greeley-Canal, July 9, 1938; Montebello, Aug. 11, 1939.

Gravity	Signal Hill (Long Beach) El Segundo †Wilmington	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda Brea Canon	Athens Rosecrans	Dominguez	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	‡Newhall and others	Mountain View	Elk Hills	Buena Vista Hills Midway-Sunset Lakeview Area	Greeley-Canal (Kern County)	Lost Hills	Coalinga	Wheeler Ridge
13-13.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
14-14.9	$0.80	$0.79	$0.74	$0.78	$0.79	$0.80	$0.76	....	....	$0.80	$0.76	$0.76	$0.77	$0.78	....	$0.70	....	$0.70	$0.70	....	$0.70	$0.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	....	.70	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	....	.70	.70	....
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	....	.70	.70	....
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	....	.70	....	.70	.70	....	.70	.70	....
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	....	.70	.70	.74	.74	....	.74	.71	.70
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	....	....	.70	.78	.78	....	.78	.72	.70
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	.78	....	.73	.82	.82	....	.82	.74	.70
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	....	.77	.87	.87	....	.86	.78	.72
23-23.9	.95	.86	.77	.96	.99	1.02	.96	.84	.79	.96	.88	.93	.82	.92	.78	....	.80	.92	.92	....	.90	.82	.76
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	.99	.91	.96	.85	.96	.82	....	.84	.97	.97	....	.94	.86	.79
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	1.02	.95	....	.89	.99	.86	....	.88	1.01	1.01	....	.98	.90	.83
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	1.05	.98	....	.93	1.03	.90	....	.91	1.06	1.06	....	1.02	....	....
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	1.02	....	.97	1.06	.95	....	.95	1.10	1.10	$0.91	1.06	....	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	1.06	....	1.01	1.10	.99	....	.99	1.15	1.15	.94	1.10	....	....
29-29.9	1.17	1.15	.93	1.18	1.18		1.17	1.12	.93	....	1.09	....	1.06	1.14	1.03	....	1.02	1.20	1.20	.98	1.14	....	....
30-30.9	1.21	1.19	.95	1.22	1.21		1.21	1.17	.95	....	....	....	1.10	1.17	1.08	....	1.06	1.25	1.25	1.02	1.18	....	....
31-31.9				....	1.24		1.24	1.22	.97	....	....	....	1.14	1.21	1.12	....	1.09	1.29	1.29	1.06			
32-32.9		*Elwood Terrace		....	1.27		1.27	1.27	1.00	....	....	....	1.18	1.25	1.16	....	1.13	1.34	1.34	1.09	Kettleman Hills		
33-33.9	....	1.28	....	....	....		....	1.32	....	....	....	....	1.22	1.28	1.20	....	1.17	1.38	1.38	1.13	....	1.19	....
34-34.9	....	1.32	....	....	....		....	1.37	....	....	....	....	1.26	1.32	1.25	....	1.20	....	....	1.17	....	1.23	....
35-35.9	....	1.35	....	....	....		....	1.42	....	....	....	....	1.30	....	1.29	....	....	....	....	1.20	....	1.27	....
36-36.9	....	1.39	....	....	....		....	1.46	....	....	....	....	1.34	....	1.33	....	....	....	....	1.24	....	1.31	....
37-37.9	....	1.43	....	....	....		....	1.51	....	....	....	....	1.38	....	1.37	....	....	....	....	1.28	....	1.35	....
38-38.9	....	....	....	....	....		....	1.56	....	....	....	....	1.42	....	1.42	....	....	....	....	1.31	....	1.39	....
39-39.9	....	....	....	....	....	F.O.B. Standard Pipe Line	....	1.61	....	....	....	....	1.47	....	....	....	....	....	....	1.35	....	1.43	....
40-40.9	....	....	....	....	....		....	1.66	....	....	....	....	1.51	....	....	....	....	....	....	1.39	....	....	....
41-41.9	....	....	....	....	....	....	....	....	....	....	....	....	1.55	....	....	....	....	....	....	1.43	....	....	....
42-42.9	....	....	....	....	....	....	....	....	....	....	....	....	1.59	....	....	....	....	....	....	1.46	....	....	....
43-43.9	....	....	....	....	....	....	....	....	....	....	....	....	1.63	....	....	....	....	....	....	1.50	....	....	....
44-44.9	....	....	....	....	....	....	....	....	....	....	....	....	1.67	....	....	....	....	....	....	1.54	....	....	....
45-45.9	....	....	....	....	....	....	....	....	....	....	....	....	1.71	....	....	....	....	....	....	1.57	....	....	....
46 &6.9	....	....	....	....	....	....	....	....	....	....	....	....	1.75	....	....	....	....	....	....	1.61	....	....	....
47-47.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.65	....	....	....
48-48.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.68	....	....	....

*F. o. b. ship.
‡Also McKittrick, Kern River. Kern Front and Round Mountain $0.70 thru 19.9 gravity; no higher gravity quoted.
†Wilmington prices differ on gravities below 18.9. Prices are: 14-16.9, $0.75; 17-17.9, $0.77; and 18-18.9, $0.79; rest of schedule same as Signal Hill.

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Transports Direct To Its Stations

Associated Service Co., Indianapolis, is preparing to deliver to every service station, regardless of size, by transport truck equipped with pump and meter, says W. C. Holmes, owner.

To promote business at its stations, each has had a neighborhood canvass of handbills and spot radio announcements.

The company has bought three new trucks, each of 4000 gallons capacity.

As an answer to new ideas for managing bulk plants, Mr. Holmes says: "Yes, abandon them."

More Personal Contact Improves Sales

"A stricter and closer personal contact in everything we do," writes Frank E. Schuerman, Independent distributor, Cincinnati, "is our idea" for improving business.

"Recognizing the fact," he continues, "that there are others in the oil business who will continue in the field, our policy is a closer personal contact with customers, who appreciate this, thereby not . . . meeting chiseling competition and receiving, in return, a boost from without, rather than from within, our organization."

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Wanted by progressive Middle West refinery. Applicant must be well experienced and qualified. State age, salary desired, and complete details regarding yourself. All replies confidential.

Box 149, National Petroleum News

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Excellent opportunity available for man well acquainted Middle West jobbing trade, particularly Illinois, Indiana. New refinery manufacturing all grades, gasoline to fuel oil. Applications strictly confidential. State age, experience, salary desired, and qualifications.

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IF YOUR TANK CARS are short, know how much. Jandreau Gauger shows shortage in gallons. Instantly. Simple to operate. Tank car buyers and agents should know. Some slightly used. $9.25 prepaid Bonded Service Warehouse, 223 Spring St., S. W., Atlanta, Ga.

Wanted to Buy

A SMALL JOBBING BUSINESS with established trade in medium size town in Virginia or North Carolina. Replies will be held confidential.

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EUROPEAN REPRESENTATIVE or EXPORT MANAGER—Hollander, world traveller, linguist. Specialties branded motor oils, petrolatums, white oils, lubricants, waxes. Knows all relevant European buyers. Seeks connection with prominent refinery. Box 153, National Petroleum News.

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Petroleum producers and refiners interested in extending their business and willing to appoint us as sole agents for India, Burma and Ceylon.

Apply Messrs. Krunar & Company
Post Box 695, Bombay, India.

Supplier Wanted

Reliable established oil jobber now planning on distributing liquefied petroleum gas (bottle gas) by establishing several bulk plants throughout southern state, desires good refinery connection. Box 151, National Petroleum News.

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"Position Wanted"—5 cents a word. Minimum charge $1.00.

Advertisements set in special type or with border—$4.00 per column inch.

Copy must reach us not later than Saturday preceding date of issue.

All advertisements carried on this page are payable in advance.

"STRICTLY PERSONAL"

An oil man may be the next mayor of Marysville, Ohio—**Leo M. Scheiderer,** general manager of Penn Oil Co. of that city, has been nominated on the Republican ticket. Mr. Scheiderer is associated in the oil jobbing company with his two brothers, **Fred** and **Frank Scheiderer,** and his father, **Wm. J. "Bill" Scheiderer,** who founded the company 26 years ago.

* * *

Maurice E. Brown, general manager, Saginaw Central Oil Co., Saginaw, Mich., recently returned from a motor trip with his family. They visited the San Francisco Fair, the Pacific Northwest and Fairbanks, Alaska.

* * *

W. A. Delaney, Jr., of Ada, Okla. and **A. A. Seeligson** of San Antonio, Tex., have been named chairman and vice chairman respectively of the Independent Petroleum Assn. of America's tax policy and advisory committee, according to President **Charles F. Roeser.**

* * *

Clyde E. Wallingford, field secretary of Ohio Petroleum Marketers Ass'n., and **J. L. Marsh,** executive secretary of the Ohio Petroleum Industry Committee, have been named by Governor Bricker to the Ohio Traffic Safety Council, made up of 60 representatives of business, civic and safety organizations. The Council has launched a drive against traffic deaths and injuries.

* * *

S. B. Mosher, Los Angeles, president of Signal Oil and Gas Co., **E. M. Burnham,** San Francisco, of Standard Oil Co. of California, and **H. F. Vogel,** Detroit, of Signal Oil and Gas Co. have qualified for membership in the United Air Lines 100,000 Mile Club. This organization is made up of persons who have travelled 100,000 miles or more by commercial air line.

* * *

Bulk of the fortune left by the late **H. V. Foster** is to be transferred into a trust for the benefit of his widow, two daughters and a sister, according to his will filed in county court at Bartlesville, Okla., recently. The probate petition gave no indication of the value of the estate of the man who helped found the Indian Territory Illuminating Oil Co. and the Foster Petroleum Co., but officials of the latter company indicated the fortune would amount to around $8,000,000. On that basis the Oklahoma treasury would collect approximately $773,000 in inheritance taxes, the largest such sum ever to be paid to the state.

Thomas J. Donoghue and **George L. Noble,** recently-retired vice-presidents of The Texas Co., who had between them a combined 86 years of service with the oil industry, 68 of them with The Texas Co., are following varied pursuits now. Mr. Donoghue remained in Houston, becoming a member of the Houston Housing Authority, while Mr. Noble is ranching in Uvalde County, stamping grounds of "Jack" Garner.

Mr. Donoghue grew up with the oil industry starting with Standard Oil Co. at Bradford, Pa. in 1884, after several years as a telegraph messenger boy In 1901 he went to Texas and was associated with J. S. Cullinan at Corsicana for a year. Leaving for Beaumont in 1902 he helped found The Texas Fuel Co. which was named The

Thomas J. Donoghue

Texas Co. several months later. He has been a Texaco vice-president since 1904.

Mr. Donoghue was born at Titusville, Pa. in 1869 and was the son of C. C. Donoghue who established one of the first refineries at Titusville.

Mr. Noble joined Texaco in 1908 after nearly a score of years with the Texas and Pacific and International Great Northern railroads. He first served as Texaco's manager of fuel oil and railway sales departments, becoming a vice-president in 1912. During his years with the company, Mr. Noble had been primarily concerned with the transportation department.

Son of one of Texas' most widely known railroad pioneers, Mr. Noble was born at Lawrence, Kansas in 1868. He entered the railroad field after leaving the University of Kansas, resigning an executive position with International and Great Northern to join The Texas Co.

* * *

A number of oil men with 25 years or more of service in the industry attended the informal luncheon tendered them by the Petroleum Industry Exhibition, Inc. at the New York World's Fair recently. **T. H. Taylor,** (Standard of New Jersey) president of the petroleum exhibit, spoke, paying tribute to the "amazing oil progress" which had reached "undreamed of heights," he said.

Among those attending the luncheon were: **O. D. Robinson,** president, Republic Oil & Refining Co., Pittsburgh; **F. H. Bedford, Jr.,** vice-president, Standard Oil Co. of New Jersey; **H. W. Dodge,** vice-president, The Texas Co.; **Otto Donnell,** president, Ohio Oil Co.; **Roy B. Jones,** president, Panhandle Refining Co.; **W. W. McFarland, Harry D. Frueauff,** and **H. Brandli,** vice-presidents, Cities Service Oil Co.

* * *

A. B. Dutt, manager, announces that The Jackson County Oil & Gas Co., Holton, Kans. has been reorganized and renamed. The company will operate its bulk plants and service stations under the name of Jackson County Petroleum Co. No change in personnel will be made.

* * *

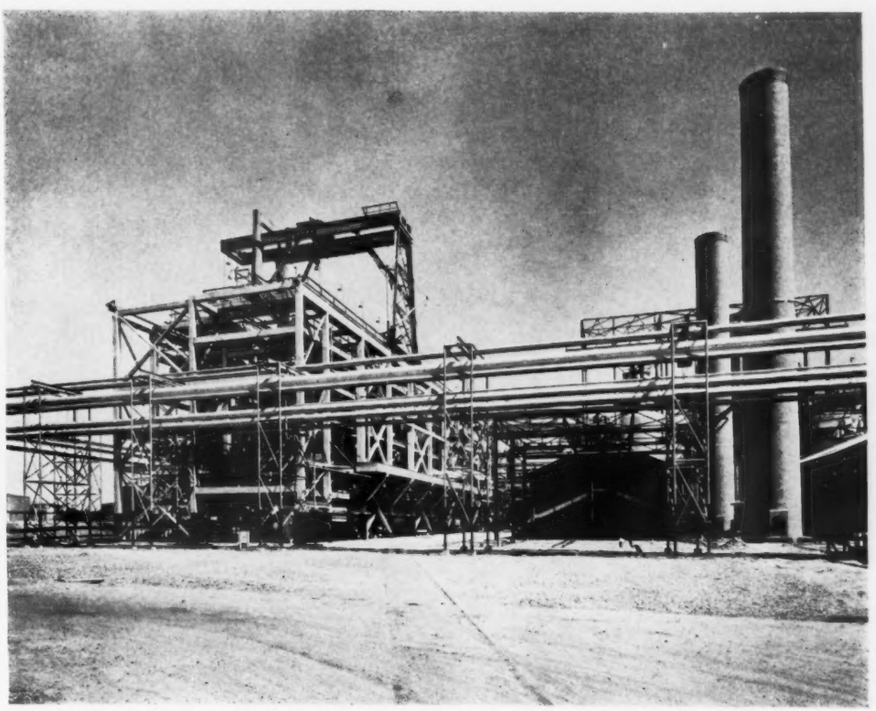
Two executives of the Socony-Vacuum Oil Co., Inc., each with 36 years of service, retired July 1. One was **Frederick S. Fales,** director, vice-president and member of the executive committee. The other was **H. E. Abrams,** director and member of the manufacturing committee in charge of foreign refinery operations.

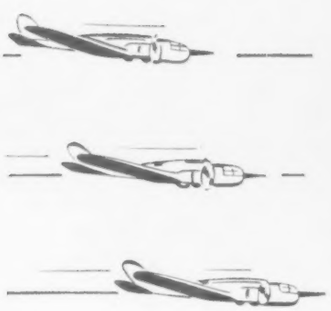
Mr. Fales, who joined the Standard Oil Co. of New York in 1903, was made a director in 1919, and president of the Standard Transportation Co. In 1932 he was elected president of the Standard Oil Co. of New York, and following the merger with the Vacuum Oil Co., became a director and vice-president of the merged company. He was made a member of the executive committee when it was formed in 1934 and also was made treasurer, which post he relinquished the following year.

Mr. Abrams joined the Standard's Brooklyn plant, was made chief clerk, was transferred to 26 Broadway, then to the refinery accounting department. In 1930 he was made a director. Refining operations abroad were his special responsibility. He was a director of the Houdry Corp., of Ultramar, and of various Vacuum and Socony-Vacuum subsidiaries.

Houdry during August

6 plants totalling 83,000 barrels daily capacity went into operation





It is significant that 9 refineries in 8 states will have available from operating Houdry Units 80 octane catalytic gasoline. This higher octane value is one major factor but there are others contributing to the preference for the Houdry Process.

To date, Houdry Catalytic Cracking Units, having a daily capacity of 130,000 barrels, are in operation or under construction.

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•

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William S. Scully

William S. Scully, counsel and general manager of the Independent Refiners Ass'n. of California, graduated from Stanford University Law School in 1930. He had his shingle out in Los Angeles until 1933, when he left for Washington to join the legal staff of the Petroleum Administrative Board, which administered the oil code during NRA days. In 1934 he was transferred back to the West Coast and appointed representative of the Oil Administrator on the board of governors of the Pacific Coast Petroleum Agency. He helped organize the California refiners association in 1936 and has been counsel and general manager since.